

# Mauritius

## Country Report

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### Habitat III





## ACKNOWLEDGEMENT

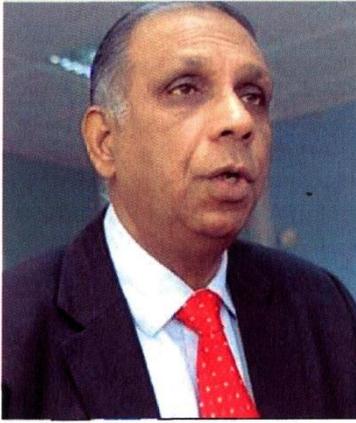
The Habitat III National Report was prepared by the Ministry of Housing and Lands National Focal Point of the National Habitat Committee with the collaboration and valuable input from:

- Ministry of Finance and Economic Development
- Ministry of Energy and Public Utilities
- Ministry of Public Infrastructure, National Development Unit, Land Transport & Shipping
- Ministry of Social Security, National Solidarity and Reform Institutions
- Ministry of Agro Industry and Food Security
- Ministry of Environment and Sustainable Development
- Ministry of Local Government and Outer Islands
- Ministry of Social Integration and Economic Empowerment
- Ministry of Business, Enterprise and Cooperatives
- Ministry of Gender Equality, Child Development and Family Welfare
- Commission Maurice Ile Durable
- National Disaster Risk Reduction and Management Centre
- Statistics Mauritius
- Road Development Authority
- Traffic Road Management and Safety Unit
- Mauritius Police Force

The support and assistance of the UN Habitat National Technical Adviser is gracefully acknowledged.



## FOREWORD



I am pleased to present the Habitat III National Country Report for the third United Nations Conference on Housing and Sustainable Urban Development (Habitat III).

The Habitat Agenda is a UN-Habitat undertaking to guide actions at all levels in a holistic manner aimed at improving the quality of human settlements. This exercise is of paramount importance for the well-being of our people. Since the issues contained in the Agenda are complex and multidimensional it has been decided to adopt a participatory approach to address urban issues, such as our island's vulnerability to climate change.

In 2013, a National Habitat Committee was established at the level of my Ministry with the main objectives to highlight issues and achievements during the last twenty years in urban demography, land use planning, environment, urban governance and housing. The report is the result of discussions and consultations carried out by the Committee. It provides a summary of the activities carried out by the various Ministries and Agencies that are directly or indirectly involved in the implementation of the Habitat Agenda.

For a small island developing country, Mauritius has made remarkable progress in the economic and social sectors. It has reached the level of upper middle income countries according to the World Bank. This achievement has required considerable effort, hard work and dedication from Government, the business community and the civil society. But we are aware that we still have a long way to go in the need to provide shelter and basic services to the needy and the poor.

The goals and principles of the Habitat Agenda cannot be accomplished if we do not innovate and provide sustainable solutions in the urban sector. To this end, our urban land use policies and strategies will shortly be reviewed to embrace a proactive approach to land management and to tackle urgent issues such as energy efficiency, disaster risk reduction and smart urban development. These challenges will require more sustained effort, further commitment and above all political will to transform our cities into sustainable economic power houses for the good of all the citizens.

**Dr. The Hon. A. T. Kasenally**

**G.O.S.K. F.R.C.S Ed**

**Minister of Housing and Lands**

October 2014



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## I. Urban Demographic Issues

### 1.1 Managing Rapid Urbanization

Rapid urbanization is a process which is a result of high population growth occurring naturally and from in-migration leading to accelerated demand for infrastructure, employment and housing, increased use of resources, environmental degradation. This unsustainable pressure offsets development opportunities and creates problems of management and control. In Mauritius, the population density is naturally higher in towns. In 2011, the five towns of the country contained 42% of the population on 8% of the land area with a density of 3,000 persons per square km. By contrast, the villages contained 58% of the population on 92% of land area with only 400 persons per square km.

Though the population has doubled over the last 50 years, the rate of growth has considerably slowed down recently. The resident population of the Republic of Mauritius went up by only 4.9% at an annual rate of 0.4% during the intercensal period 2000-2011. In absolute numbers there has been an increase of 53,314 due to increase of the rural population. All the urban areas except one have lost population. Port Louis the district and capital city lost population which went down by 0.69 on an annual average.

#### Evolution of the population by urban/rural residence

Urban\Rural Residence	Population 2000 census	Population 2011 census	Intercensal Increase/decrease	
			Number	Annual average
Island of Mauritius	1,143,069	1,196,383	53,314	0.42%
Urban population	503,045	499,349	-3,696	-0.07%
Port Louis	144,303	137,608	-6,695	-0.43%
Beau Bassin/Rose Hill	103,872	103,098	-774	-0.07%
Quatre Bornes	75,884	75,613	-271	-0.03%
Vacoas/Phoenix	100,066	105,559	5,493	0.49%
Curepipe	78,920	77,471	-1,449	-0.17%
Rural population	640,024	697,034	57,010	0.78%

Population growth has stabilized with a slow rate of increase and the urban areas are actually losing population. The population pyramid shows the profile of the developed countries by having a narrow base and a wider top.

The island of Mauritius is wholly accessible.

More than half of the population lives outside urban areas however most of the employment areas are in the urban areas inducing a high level of commuting. The island has a relatively good connectivity index when compared to other countries. This is reflected in the total length of roads which has increased from 2000km to 2112km over the 2002 to 2011 period.

99.9% of the households have flush toilet facilities.

A serious effort to connect the urban densely populated areas to proper sanitation has resulted in the two urban districts leading in terms of connection to a sewerage system. Port Louis and Plaines Wilhems are connected to the rate of 87% and 39% respectively.

Alongside the historic urbanisation around and along the main transport corridor, the land use scenario has been substantially modified with changes induced in the sugar sector economy. Following the implementation of the EU sugar reform leading to a drastic cut of 36% in sugar prices, the major sugar sector stakeholders moved into real estate development namely residential, commercial, Business Parks, and Integrated Resort Scheme/ Real Estate Scheme the last two types of activities geared towards luxury housing for rich foreigners given the vast areas owned by the sugar estates. Services and shopping malls have developed along main transport corridors while higher income housing is moving towards coastal areas close to tourism centres. This has led to a dispersal of the urban forms in a polycentric form which has been costly in terms of connectivity.

Housing development for the lower strata of the population especially those benefitting from redundancy package from the sugar sector has grown around all the main settlements in rural areas. Urbanisation pattern broadly follows the spatial framework approved by Government which favors the release of land which can be easily connected to existing physical infrastructure. Prime agricultural land and land of environmental sensitivity are normally protected from development.

## 1.2 Managing rural-urban linkages

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The island is small and hence all areas are highly accessible. Legally and administratively there are in Mauritius five urban municipal areas and seven rural district councils. However, no distinction can be made between the rural areas and the urban areas in terms of physical infrastructure such as electricity, water, telephone roads and social facilities such as primary and secondary schools, community and youth centres, children and football playgrounds, banks, etc. some big villages are very developed in term of infrastructure provision and could easily qualify as urban zones.

The contraction in the agricultural industry, mainly the sugar sector has considerably reduced the amount of employment in the sector and its share in the Gross Domestic Product. The establishment of manufacturing and service industries (tourism) in the rural areas has sustained the rural areas in employment creation and services offered. Moreover, Government policy on decentralization has also helped the rural areas to improve provision of social and economic infrastructure.

**Table 1: Housing Conditions in the Island of Mauritius (2011)**

Housing Conditions	% of Housing Unit	
	Urban	Rural
Connected to Electricity Grid	99.7	99.5
Connected to pipe water	99.8	99.6
Solid waste collection service	99.1	96.4.
Concrete residential unit	93.1	92.7
Detached or semi-detached housing units	62.7	77.9
Owner occupied housing	82.9	93.0
Less than one person/room	63.4.	56.8
Household with a computer	43.7	33.9

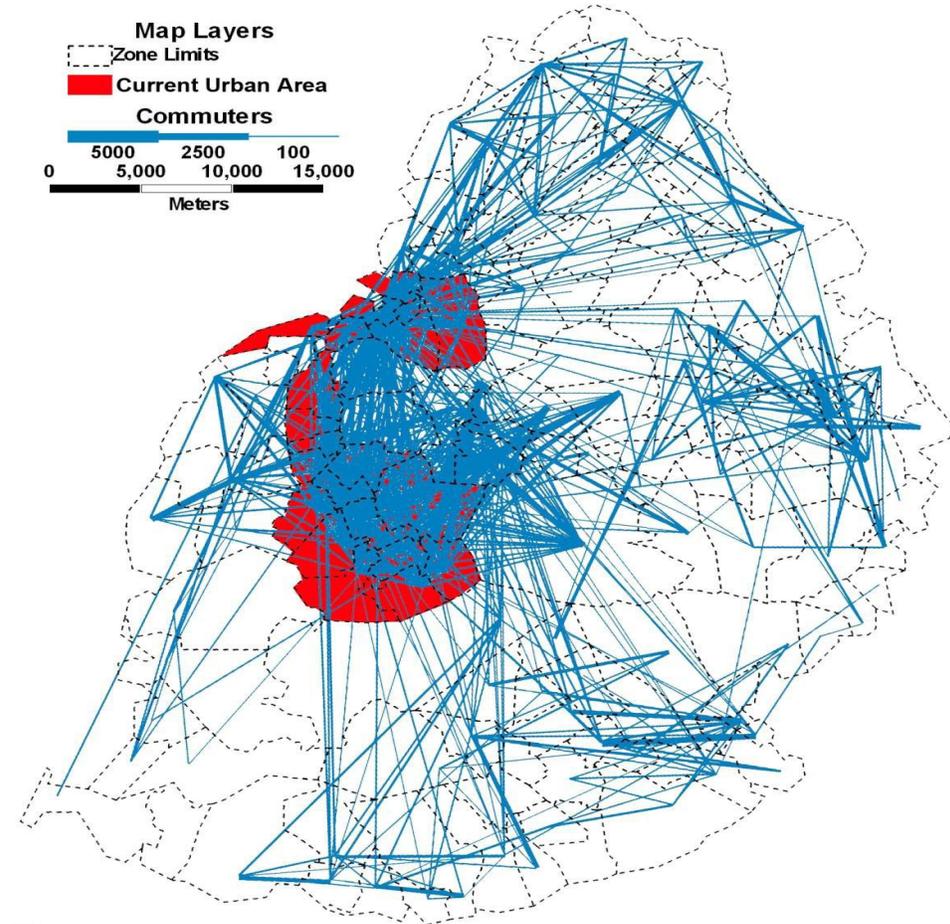
The rural areas are attractive as prime residential areas because of existing facilities and because rural areas are not subject of local property taxation. Urban sprawl is a consequence of good transport infrastructure and other services, lifestyles and availability of land outside the urban limits. The tendency over the last two decades has been a general extension at relatively low to medium density on former agricultural lands. The amount of land from the agricultural sector is however controlled.

Likewise the connectivity throughout the island is quite good. The road network is around 2031 km for a total land area of 1885 Km<sup>2</sup> giving a road density of 109 km of road per 100 km<sup>2</sup> of land area. This ratio compares favourably with countries like Seychelles, India, and well above those in African countries. Easy accessibility throughout the island determines to a large extent the choice of place of residence. No major influx of population from rural areas is noted. Instead a reverse trend is noted with an outgoing movement away from towns for a better life style with sub urban type of housing development.

98% of roads are tarred.

The map below shows the traffic flow throughout the island which is characterised by movement mainly between the main settlements centres and within the main urban core. Areas which appear to be unconnected are either mountainous zones or under agriculture.

## Commuting pattern of population



Source: *Autar Bhotish Awtar: Generated from Place of Work Data, Statistics Mauritius, Census 2011*

### 1.3 Addressing urban youth needs

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The vision of government for the youth is to be responsive to the aspirations and needs of youth, empowering them for a better future and to create an enabling environment to act as a catalyst and facilitator for the promotion and development of youth.

Between 2000 and 2011, the population has undergone various changes in its age and sex composition. There is an ageing process in and the number of children below 15 years has gone down from 25% to 21%.

In Mauritius, a young person is defined as an individual between 14 and 29 years of age. Between 2000 and 2011, the proportion of people aged 16 years and over (including 60+) who have attained secondary education level or higher levels increased from 23% to 35%;

Qualification at the tertiary level went up from 2.3% to 4.8% and the tertiary sector is becoming increasingly important in terms of employment, accounting for 63% of employment in 2011 compared to 49% in 2000. Simultaneously, the share of the primary sector (mainly agriculture) dropped from 12% in 2000 to 7% in 2011, while that of the secondary sector (mainly manufacturing and construction) decreased from 39% to 30%.

There are 25 Youth Centres which are operational across the country. In addition centres are also set up in remote areas as well as in poor areas to cater for the growing needs of the young people living in such pockets of poverty.

Nine Strategic Areas of the National Youth Policy have been identified to guide actions with respect to youth empowerment and activities are being organised at local, regional and national levels.

### 1.4 Responding to the needs of the aged

Mauritius is no exception to the global ageing phenomenon noted in the developed countries. The elderly population aged 60 years and above increased from 9% to 13% and is expected to reach at least 30% by 2050.

To ensure the best care of our most senior citizens, a well organised network has been established to ensure a cost-effective care involving partnership between government and NGOs, enlisting voluntary service to the maximum, especially the collaboration of the senior citizens themselves. Main government expenditure for social protection which includes universal system of non-contributory pension for the elderly and other social security benefits account for about 27.3% of the budget recurrent expenditure. The elderly persons also benefit from free transport.

Legislation has been set up with the objective of ensuring that adequate protection is provided to elderly persons against ill-treatment.

Since 2005, free public transport provided to old-aged, disabled and students.

The Protection Unit set up with the coming into force of the Protection of Elderly Persons Act, 2005.

A Welfare and Elderly Person“ Protection Unit has been put up to deal with referred cases of abuse against the elderly through mediation, counseling and family conferencing and to organize public awareness on the protection of the elderly. In addition, recreational Centres for the senior citizens are provided in three main centres.

Mauritius is among those few countries which have a very long experience in managing care homes – over 150 years. These homes used to be called “convents” and since January 2005, they are known as residential care homes, with the Residential Care Homes Act 2003 and the Residential Care Homes Regulations 2005.

There has been a gradual increase in the number of private paid retirement homes. The Residential Care Homes Act 2003 has been enacted to monitor the management of private residential care homes and standardize the norms governing them.

The health care provided to the elderly with decentralized health services coupled with universal basic retirement pension at 60 ensure that the elderly are treated decently.

### 1.5. Integrating gender in urban development

Government has a vision of a society free from violence, exploitation and discrimination based on sex, where the fundamental rights of women and children are respected and where human values within the family and the civil society are valued.

Policies and programmes geared towards upgrading the status of women, children and family, to safeguard their rights, to protect them against all kinds of abuse and discrimination have been framed so that alongside their welfare and rights, they are empowered economically through basic skills development and entrepreneurship development.

#### **Distribution of resident population aged 15 years and over by marital status, Republic of Mauritius, 2000 and 2011 Population Censuses**

<b>Marital Status</b>	<b>Census 2000 (%)</b>	<b>Census 2011 (%)</b>
Single	29.2	27.6
Married/ In a union	60.0	58.9
Widowed	7.5	8.2
Divorced /Separated	2.9	4.2
Unmarried parent	0.2	0.4
Other & not stated	0.2	0.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Changes in the marital structure of family require specific approach on a need based systems and customized accordingly. Compared to 2000, economically vulnerable groups such as separated and divorced persons, unmarried parent were on the rise both in absolute numbers and in proportion. In 2000, married but separated and divorced persons were 25,800 in number and made up 4% of all ever-married persons. In 2011, they made up 41,000 or 6% of all ever-married persons indicating the increased likelihood of a marital breakdown. Unmarried parents, made up mostly of unmarried mothers, were on the increase from 2,100 in 2000 to 3,800 in 2011.

The living arrangements of Mauritians have changed from the typical household comprising a couple with unmarried children which made up 59.4% of all private households in 2000 and is becoming less common and made up only 51.4% of all households in 2011. Couples without children were on the rise from 27,000 (9.1%) to 45,000 (13.1%).

Households made up of lone parent with unmarried children rose from 30,700 (10.4%) to 38,700 (11.1%) while single member households increased from 18,500 (6.2%) to 34,700 (10.1 %). These are vulnerable groups which require assistance in many cases.

On the employment front, in 2000, the number of men per 100 women was 199 among the employed persons; by 2011 the ratio fell to 178 indicating that more women are taking employment. This has effects on social infrastructure needs to cater for nurseries, pre kinder garden schools, day care centres.

Disability on the increase with 4.9% of the population in 2011 compared to 3.5% in 2000. From 2000 to 2011, disability prevalence increased across all ages. The increase was highest among the elderly aged 60 years and over. As per the last population census, there were some 60,000 persons with disabilities in Mauritius. This number is likely to increase with incidence of non-communicable diseases and ageing of the population.

In regard to the empowerment of women and their full and equal participation in political, social and economic life, it is noted that the policies and programmes of government are aligned to international and regional commitments pertaining to women's empowerment and gender equality. As at date, 43% of the recommended actions under the Costed National Action Plan to End Gender-Based Violence have been implemented.

Social welfare centres have been at the service of the community for the past 50 to 60 years. They have largely contributed to influence the social development of villages by organizing different types of social and community-based activities and by networking with social agencies and other sectors for the empowerment and integration of local communities.

## 1.6 Challenges experienced and lessons learnt

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In view of the smallness of the country the main challenges have been to maintain equilibrium between places of residence, workplaces and other activities. As urban areas are generally endowed with facilities of a higher order, access to these socio-cultural and economic facilities induced increased movement between urban and rural areas.

The transport system has had to cope with higher levels of traffic to maintain a relatively acceptable level of congestion. The need for more roads and their implementation has encouraged a more diffuse type of urbanisation which in turn increased the carbon emissions and contributed in air pollution.

The issue of overprovision of land for development mainly for residential purposes remains an issue. The rate of infill of land parcelled out during the last 25 years has been relatively slow resulting in a loss of agricultural land, speculation where land is treated as tradable commodity instead of basic resource, wastelands which are potential grounds for pests, crime and urban sprawl leading to increase in infrastructure expenditure and change in character of countryside.

There is a need to define a proper road hierarchy determined by their primary function. Roads having several functions create dysfunctions. They should be designed to distribute traffic locally or provide access with long distance roads to connect main settlements without any intermediate access providing uninterrupted travel. Small bypass roads help to avoid transit traffic from clogging the local distributors and accesses.

The other land use issue is to limit urban sprawl by consolidating urban centres, redevelopment of inner town centres, residential areas. In Mauritius the intra-urban road network to increase capacity has to be looked into to be more efficient in meeting the sustainability objective.

Provision of more urban parks and pedestrian access, cycle paths, roadside tree planting for urban cooling, and building design to encourage energy conservation have to be encouraged.

One big challenge is controlling unemployment. It is presently at the rate of 8%. Unemployment affects Mauritian women more than men. As at the first quarter of 2014, Statistics Mauritius estimated that there are 45,300 Mauritians who are unemployed, out of which of 25,900 were women and 19,400 were men. This represents an unemployment rate of 11.8 % for females against 5.5 % for males.

## 1.7 Future challenges and issues

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In line with the Habitat agenda goals, “adequate shelter should be provided for all that is safe and healthy shelter where basic services are essential for a person’s physical, psychological, social and economic well-being.”

Social housing complexes should be strengthened to include more services for children, families and the residing community (social/community centres, child care and family welfare services etc.). More economic houses with cheaper and stronger materials and sustainable buildings should be built to meet the objectives of a sound environment.

With a view to creating a more inclusive society, housing complexes should make provision for accessibility for persons with disabilities.

Problems of a social nature are likely to emerge where the ageing has traditionally benefited from the care and protection of their next of kin or the local community. Those relationships may become increasingly difficult to maintain when the number of dependent elderly increases while at the same time traditional care-providing structures, such as the extended family, are undergoing radical changes in Mauritius. With change in the family structure, the need for more homes to shelter the old and rejected people would be highly felt.

The housing needs of the elderly will have to be addressed through:-

- (a) Promotion of the concept of ground floor housing units for elderly persons and persons with disabilities;
- (b) Special housing complex with appropriate facilities be provided for elderly persons and persons with disabilities;
- (c) Appropriate regulations to ensure that construction norms are provided for elderly persons and persons with disabilities;
- (d) Appropriate fiscal or other incentives provided to encourage families to envisage extension of their houses to accommodate an elderly person and persons with disabilities;
- (e) Loan facilities with preferential interest rates to elderly persons and persons with disabilities for the purchase or construction of an independent housing unit.

For the younger Mauritian generation, home ownership can potentially become a problem. The market prices for renting and acquiring properties are high, and they will continue to rise due to speculation to a large extent and the artificial rise in prices due to a knock on effect caused by products like the IRS schemes.

With the setting up of the Youth Employment Programme (YEP) in 2013, the government wishes to facilitate the transition of youth from education to employment and to provide them with the core skills required by different sectors of the economy.

The government is mounting a "service-focused employment preparation" training program to address the skills gap and employability skills that would improve the "soft skills" of the youth to be more effective in the work place.

The female unemployment rate in Mauritius has traditionally been much higher than for males. To address this gender gap, a "Back to Work" Programme for women who wish to re-join the labour force will be implemented.

There is presently an existing mismatch between the requirements of employers and the profiles of the unemployed youth in Mauritius. The possibility of absorbing the increasing number of professionals will have to be explored for employment outside the country where there is scarcity of resources. Hence, there is need to develop a strategy that will facilitate these professionals to take up employment abroad.

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## II. Land and Urban Planning

### 2.1 Ensuring sustainable urban planning and design

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Central government is responsible for the spatial planning of Mauritius so as to provide a basis for the long term physical development of the island which supports the National Development Strategy and direct development in a manner which will integrate economic competitiveness with environmental sustainability and social equity. It has equally to reinforce and modernize the legal and institutional structure so that meaningful and lasting results can be achieved as well as satisfy the housing and land needs of the people of Mauritius.

In order to provide an integrated land use planning and management a National Physical Development Plan was prepared in 1994 with two main objectives:

- (i) To provide a national framework for the formulation of local development plans and development and environmental control criteria for the effective monitoring of physical development and environmental management at local level; and
- (ii) To provide a spatial framework for the public sector investment programmes.

The first objective was partially achieved with the preparation and approval of the rural outline schemes. However, the second objective was not fully achieved due to many reasons.

After the 1996 World Habitat Forum a series of initiatives were taken in order to better plan and achieve sustainable development.

#### **National Development Strategy**

The **National Physical Development Plan (NPDP)** was reviewed in 2003 which the overall goal to provide a solid basis for the physical development of the island over the next 20 years to support the development strategy in an economically and environmentally sustainable manner.

#### **Revision of Urban Outline Schemes**

Since the seventies government has had strategic and local spatial plans prepared to guide development. From 1995 the process has become more and more formal and regular. Today the island is covered by updated development plans which allow all stakeholders to be informed of provisions and development opportunities.

#### **Planning Policy Guidance**

The Planning Policy Guidance is a set of design guidance to assist in the design, siting of development. The residential, commercial, coastal guidelines, Industrial Development and Hotels and Integrated Resort Development were prepared to guide emerging economic activities. They are regularly reviewed to reflect changing circumstances.

A series of new Planning Policy Guidance such as on Sustainable Development and Energy Efficiency; Heritage Conservation and Residential Morcellement Development have been prepared to assist in promoting sustainable development and design in Mauritius.

### **Energy Efficiency Buildings**

The promotion of energy efficiency at all levels including energy management in buildings; was implemented through a project “Removal of Barriers to Energy Efficiency and Energy Conservation in Buildings.”

One of the goals is to reduce greenhouse gas emissions sustainably through a re-engineering of the building energy efficiency for existing and new buildings.

### **Green Lending Scheme**

In 2009, four Mauritian Banks sealed a partnership with ‘*Agence Française de Développement*’ (AFD) whereby a 40M€ green credit line was implemented to drive and speed up green investment decisions in the areas of sustainable energy and environmental performance.

Applications are open to anyone with a green investment project covering the following investment eligibility requirement:

- Renewable energy investment (e.g. hydroelectric, wind power, solar water heaters, sea energy, geothermal etc.).
- Energy efficiency investment (e.g. rehabilitation of boilers/steam distribution systems/power distribution systems, installation of new chillers, new production systems/buildings using the best available technologies for environmental protection, etc.).
- Environmental performance investments (e.g. waste management projects, wastewater treatment, air pollution control, treatment of contamination, cost of an eco-audit, etc.).
- Investment in eco-business companies who are committed to tasks that would increase the availability or quality of renewable energies, energy efficiency and environmental performance of equipment and services.

Other requirement: Intended investment on environmentally projects must be greater than MUR 1 million (25,000€).

The 2009 AFD scheme offered a maximum loan of 7 M€ with a minimum equity participation of 15%. A minimum maturity period (project span) of 4 years was allocated. The loan had a moratorium of a 3-years grace period where only interest could be paid. Once the eligible investments were fully implemented and the borrower has been able to prove that the amount of loan was spent on environment friendly projects, 12% of the loan amount is transferred as grant to the beneficiaries.

The first scheme was a success having the following yearly reductions: 26GWh of energy.

In December 2013, a second green loan facility agreement was signed whereby 60M€ has been granted. New conditions pertaining to this agreement involves financing up to 100% of the cost of the green project with cash back facility reduced from 12% to 8%.

## **2.2 Improving urban land management, including urban sprawl**

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### **Land use plans**

Several measures have been taken to improve urban management. Government has been consistent in improving the efficient use of utility and transport infrastructure, and existing social and economic investments. For effective urban management, it is necessary that there is an adequate supply of serviced and buildable land within the urban limits. As far as possible a close linkage is provided between areas connected and accessible to developable areas. The availability of land use plans and design standards as well as participatory preparation of zoning plans help in achieving socially inclusive development.

Development plans based on a policy and proposal approach advocate a clustering principle of development rather than dispersal. The clustering of workplaces, homes, leisure activities and cultural and community facilities helps to reduce pressure on environmentally-sensitive areas and important landscapes in the countryside and on the coast. All new development is directed towards strategic growth clusters in the conurbation, the countryside and on the coast. These strategic growth clusters have been identified on the basis of the following:

- Critical mass in terms of population, housing and workplaces;
- Strategic location in terms of accessibility of the major highways and public transport network, (current and proposed), port and airport;
- Current development commitments including social and economic infrastructure and potential for sustainable growth;
- Administrative and geographic growth.

The plans have provided an oversupply of serviced land. To ensure acceptability of proposals, a set of design guidance is available to guide development implementation.

## **Land Registration, Tenure and Cadastre**

In view of providing an effective Land Administration and Management System, Government put up a Land Administration, Valuation, and Information Management System. Through the LAVIMS project, the Government of Mauritius ensures that a secure and efficient system exists in order to deter and prevent fraudulent practices, foster professional responsibility and duty of care, support a secure registration system and ensure confidence in Mauritius Land Transaction system. The management system comprises a complete property valuation for taxation purposes, a physical cadastre of all land parcels and a parcel-based Deed Registration System. The project is operational.

## **Natural disaster Management**

Areas liable to natural risks and disasters have been mapped whenever possible and precautionary measures put in place for safeguard of life and property. There is a highly efficient warning and follow-up system for cyclones and storm surge. Good telecommunications allow potential victims to be made aware of risks.

### **2.3. Enhancing urban and peri-urban food production**

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#### **Urban agriculture**

The island of 1800 km<sup>2</sup> has limited arable land. Out of the 80 000 ha of land devoted to agriculture, 57 000 ha are under sugar cane cultivation. The country is also known to be a net food importer for the staple food (wheat and rice). Rice is produced on a modest scale with less than 1000 tonnes. However, as far as fresh vegetables are concerned, the country is almost self-sufficient, where imports are authorized only following natural calamities, or in case of specific commodities needs of the tourism industry.

Food crop cultivation and livestock production are carried out across the island and there is no specific region as such. Both rural and urban regions are concerned with the production. There are some commercial production fields in urban areas, such as Carreau Lalianne, Solférino, Terre Rouge, Highlands and Robinson, Curepipe.

The island is small and easily accessible to all parts by reliable modes of transport. Hence urban agriculture is not a major issue. Three factors contribute in facilitating the production and supply of fresh produce to the urban areas, namely physical infrastructure, including road networks; relations between producers, traders and consumers, institutional and commercial set up. The farming community has specialised itself to meet the needs of the local community and the tourism industry.

Tradition livestock activities carried out in the backyard as a secondary activity in the peri urban zone for the unemployed women is on-going nowadays, though to a lesser extent. Animals that are concerned are dairy cows, goat and sheep, pig, and smaller animals such as rabbit and poultry (both for meat and egg production).

A Sustainable Diversified Agri-Food Sector Strategy for Mauritius 2008-2015 has been developed. The expected outputs have been worked out and focus on production of priority food crops, fruits and ornamentals including promising crops along with promotion of important species of farm animals and poultry, all aiming at enhancing our food security.

In 2008, increases in global food prices, rising food import bill and high price volatility resulted in a re-thinking of the food security strategy of the country and a Food Security Fund Strategic Plan (2008-11) was prepared. This was followed by a prolonged strategy with the Food Security Fund Strategic Plan (2013-15) which aims at inter alia, increasing the production volume of a number of priority crops, maintaining self-sufficiency level in poultry meat and fresh vegetables provide more land for production of foodstuff and mitigate the marketing constraints encountered by small food crop farmers.

Support and assistance have been provided to the farmers through the Extension Department of Food and Agricultural Research and Extension Institute (FAREI), namely the Crop and Livestock Divisions, Women and Youth Units.

The Agricultural Youth Clubs, Entrepreneurs Clubs and Women clubs are associations affiliated with FAREI to promote and encourage interest in agricultural production and provide training toward the empowerment of farmers.

Food crop cultivation and livestock production are carried out across the island. In 2012, production in the Horticultural sector was estimated at 120 000 tonnes of fresh produce.

## **2.4 Addressing urban mobility challenges**

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The 2003 National Development Strategy provided an integrated land use and transport strategy that would meet the needs and demands of the country for the next 20 years and include several policies for the urban areas.

In 2008, about 2 billion rupees were earmarked for road investment. A number of projects have been implemented to address road congestion along the motorway as well as in major villages.

In 2009, Government decided that the road decongestion Programme, which is a critical component in the government strategy to address the problem of road congestion be implemented within a Public Private Partnership (PPP) configuration. Some of the projects are being built by private partners whilst others by Government.

Projects such as widening of the motorway along critical sections, new link road to provide an alternative long distance connection to the north and a bypass to the capital have been constructed by the Government.

It is expected that upon completion of all these projects by 2016, traffic congestion will be under control and the congestion cost will have dramatically decreased.

The road network within the intra and inter urban areas though relatively dense is quite inappropriate to carry a big volume of traffic; these roads are inherently deficient in geometry, drainage and strength.

Over the years some of the main roads have been strengthened and upgraded, but most of them have weaknesses such as inappropriate width, bad geometry, absence of pavements, lack of drains in built-up areas and absence of adequate on-street parking space in business and commercial zones. Only a few have the potential of being upgraded to drain local traffic safely and efficiently. Most of the urban roads are besides dangerous for pedestrians and constitute a handicap for urban mobility and environmental sustainability.

To overcome this type of deficiency, all new land subdivisions have to provide for proper road widths, pavements, drainage and cycling tracks.

People with disabilities face a lot of hardship to move around. All public buildings and public amenities have to provide for easy access to people with disabilities. This is further reinforced in urban policies available for determining development applications.

## **2.5 Improving technical capacity to plan and manage cities**

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Prior to 1995, all professional planning staff was located at the central government level at the Ministry of Housing and Lands. Although local authorities are the planning authorities of their respective areas the task of managing urban space was being carried out by engineers of the Public Works Department. Professionals at the central level were involved with strategic matters and had little time to devote to land management issues at the local level.

In the year 1995, Central Government decided to set up a Planning Department in all the local authorities and staff them with the appropriate professional. This has enabled the Planning Departments of local authorities to be staffed with professionals and sub-professionals.

The efforts to improve technical capacity has been sustained both at central and local level. Recruitment of staff with possibility of training on the job and through government sponsored courses abroad has been on-going. Local courses have also been mounted at tertiary level to improve capacity. There has been a marked positive change in the way local authorities address urban development issues.

Development plans used for managing and guiding development are available for public to inspect and use to design projects. All plans and guidelines are also posted on the web site to increase awareness of the public.

Procedures for delivering permits have been standardized in all the local authorities. The delay for determining an application for a permit has been set down in law. Today, where a valid application has been made the local authority is bound to determine the application within fourteen (14) working days. Manuals and other guidelines are regularly issued to inform and assist public to understand requirements and permitting procedures.

With a view to further improve the technical capacity of Planning Departments the Ministry of Local Government and Outer Islands embarked on a program for the computerisation of the permit system in the year 2010. The first phase of the program is almost complete and the second phase which consists of receiving online planning application will be implemented shortly. All local authorities have also access to view the latest aerial photography and some of the parcel attributes (deeds and plans) for development control procedures.

## **2.6 Challenges experienced and lessons learnt**

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Much progress has been achieved in meeting the challenges for effective response on optimising urban land uses, development planning, regulations and policies on the release of land from agriculture for non-agricultural uses, maintaining the agricultural activities and achieving food security, keeping road congestion to an acceptable level, improving accessibility and harnessing technological advances for better planning having regard changing circumstances on the socio-economic front and sustainability principles.

A higher rate of success for better land use planning and management depends on some key requirements:

- Commitment from government and all stakeholders on a common vision and plan of actions to achieve outcomes beneficial to whole society;
- A more user friendly approach less cumbersome in terms of formal procedures and a Consultation plan, using a facilitated community consultation method, to ensure that the needs, ideas and knowledge of the community are used for projects of general interest;
- Partnership of public and private stakeholders, NGOs and community in delivery of services;
- Decisions concerning public expenditure on roads and other infrastructure should be weighed against impacts in other aspects of urban living;
- Renewal of urban fabric (poor internal roads and local distributors, narrow roads, lack of pavements, inadequate building setbacks along roads, dangerous road sections) to promote higher densities, less urban sprawl, more green space, integrated transport system);
- Planners have to be more responsive and promote actions and manage change with less emphasis on control and regulation of land to a management approach by bringing together public and private stakeholders and community.

Agriculture plays an important role in the socio-economic context and is facing increasing challenges both within the country and on the international front. The adverse effects of the reduction in sugar price are reflected in the non-sugar sector. Already a number of sugar cane growers are thinking of diversifying and have been looking for information and planting materials like banana, pineapple. With the falling of trade barriers, our local farmers have to become more competitive both in terms of cost and quality to maintain their market access.

The challenges faced by the Mauritian non-sugar agricultural sector are multi-fold and comprise of pressures on land resources, climatic uncertainties, rising costs of imported inputs, increased exposure to pests, increasingly rigorous sanitary and phytosanitary norms, stringent quality standards in our export markets and harsher competition amongst other things.

In this connection, issues like food security, quality management, and sustainability have to be embraced to better confront oncoming challenges. To this effect it is imperative to identify the appropriate vehicles that would provide an innovative and constructive way of carrying forward these themes. The food security objective can also be met through the urban strategy by existing enabling policies regarding land use such that in certain urban areas dedicated areas are earmarked for mixed uses/ agriculture/ market.

## **2.7 Future challenges and issues**

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### **Urban Sprawl**

The NDS was designed to provide a dynamic land use framework that would not stifle development through rigid statutory zoning and design standards. The inbuilt flexibility has however created some functional distortions through over use of discretionary powers and urban sprawl which was a direct consequence will be a major challenge to be managed as there is a surplus sugarcane land for which alternative sustainable and productive use has to be identified. Urban sprawl has contributed in the loss of agricultural land, loss of biodiversity, air and water pollution and global warming.

Sub-urban sprawl creates over reliance on the automobile as the main form of transportation. This over reliance on private cars has worsened the already existing problem of traffic congestion and road accidents in our roads. Moreover, the intensity of air pollution further increases from smoke emitted by cars and increases the energy bill which is second highest for the transport sector.

On the agricultural front, the main challenges for the agricultural sector are the pressure for conversion of agricultural lands into residential areas. The close proximity to residences and other public places is a major threat for production. These locations are gradually becoming the target for urban expansion through formal urban extension during plan preparation. Though the urban density is quite high with more than 42% of the population concentrated on 8% of the territory there is still scope for intensifying land use within the urban perimeters without expanding outwards on green field land.

The challenges now are how to limit urban expansion, reduce the need to travel and increase energy efficiency of the urban built form.

### **Climate Change**

Our country is more exposed to the effects of climate such as beach erosion, flash floods, coral bleaching due to rise in sea water temperature and extreme weather. If left unaddressed, climate change impacts will exacerbate, making it more difficult for us to achieve sustainable development and poverty reduction goals. The two main urban planning strategies that can be used to mitigate climate change by reducing carbon emission are (i) by influencing the urban form and structure and (ii) by the design and use of built environment.

### **Ageing Population**

Statistic Mauritius (2011) show that the present number of persons 60 and above was 156,506 representing 13% of the population. Population projection indicates that the percentage of people 60 and above would be **306,420** in 2031 and **369,215** in 2051 doubling in the next 20 years. This will represent **22.7%** in the year 2031 and **29.5%**, in the year 2051, nearly one third of the total projected population.

In light of the above, urban planning will have to adapt to these demographic changes and need to create “age-friendly” and "disabled-friendly" neighbourhoods. The Building Control Act makes provision for elderly, disability and gender specific requirements.

### **Road congestion**

Congestion is catching up and it is expected that even if policies are implemented to restrict vehicular growth or movement, there would be a need to either increase the capacity of existing roads or construct new bypasses in these areas given the upward trend in increase of vehicles rising by 5% each year and there is practically no replacement of public transport fleet. The major challenge will be to implement the Mauritius Light Rapid Transit which will entail a major rethinking and redeployment of the other transport modes, review existing road linkages. The financing, ticketing and management will be issues to address as well as a gradual shift from car mode to public transport mode for all segments of the population.

Because many towns and villages in Mauritius have grown up alongside the main road network and increased community severance by existing and proposed roads, there is an on-going need for by-passes in order to divert through traffic away from sensitive areas and provide for road safety measures. These would need to be progressively put in place.

## **Setting of a National Spatial Data Infrastructure**

The Ministry of Housing and Lands has embarked on a new project called National Spatial Data Infrastructure which will be the platform for collecting, sharing and disseminating geospatial data. The purpose is to facilitate access to information and facilitate decision making process. This project will contribute in promoting sustainable development through the application and dissemination of Geo-information and allied Information Communication Technology (ICT) services in diverse sectors such as Monitoring of Environment, analysis of Comparative Advantage of Food production Areas to improve security, Land Cover mapping for Green House Gas Inventory, Mapping and Classification of Forest Cover and Geo-Information for Disaster Risk Reduction (DRR).

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### III. Environment and Urbanisation

#### Issues and Challenges for a New Urban Agenda

##### 3.1. Addressing Climate Change

##### 3.2 Disaster Risk Reduction

##### 3.3 Reducing traffic congestion

##### 3.4 Air Pollution

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#### Achievements in the above sectors

- (1) A Technology Needs Assessment has been conducted and technology action plans that are consistent with national development priorities have been formulated to implement technologies that reduce greenhouse gas emissions and support adaptation to climate change. Twelve technologies have been prioritised from an initial list of 128 technologies for enhanced climate change mitigation in the Energy sector, and adaptation in Agriculture, Water and Coastal Zone sectors.
- (2) A National Climate Change Adaptation Policy Framework has been developed to integrate and mainstream climate change adaptation into core development policies, strategies and plans. The key objectives are to avoid, minimise and adapt to the negative impacts on human settlements and infrastructure and loss of lives.
- (3) An **Integrated Water Resources Plan** for harnessing **additional water resources has been prepared**, along with maintenance of water networks, undertaking hydrological studies, boosting efficiency of water usage and amendment to water-related legislations.
- (4) **A Master Plan for “Development of the Water Resources in the Republic of Mauritius” was prepared in 2012.** The Master Plan Report provides a “road map” to realize the integration and management of water resources for the time horizon of 2025 and 2050, and an investment plan for implementation of the associated water mobilization infrastructure components. The overall setting of Mauritius water sector within the broader aspect relating to population growth, industrial & agricultural developments and other socio-economic characteristics including the effect of climate change have been considered in the Master Plan Report to meet current and future water demand.

- (5) A **Climate Change Information Centre (CCIC)** has been set up at the Ministry of Environment and Sustainable Development to promote awareness on climate change, provide early warning climate risk information to communities and work on collection of future climate projections for the Republic of Mauritius. The CCIC acts as a data centre for climate change related data and information meant for informed decision making.
- (6) Government has embarked on the **Disaster Risk Reduction Management Project**. Climate risk analysis, which was a central component of this project, is one of the first comprehensive climate modelling studies conducted for the country for inland flooding, landslides and coastal inundation. Additionally **National Risk Profiles (Risks and Hazard maps), Strategy Framework and Action Plan** for disaster risk management have been developed under this project. These contributed to designing of robust disaster risk policies and management practices for the decades to come.
- (7) A draft Bill - the **National Disaster Risk Reduction and Management Bill** has been prepared to provide a legal framework to the **National Disaster Scheme**. The object of the bill is to make better provision for the prevention and reduction of risk of disasters; the mitigation of the adverse impacts of disasters; disaster preparedness; rapid and effective response to disasters; and the management of post-disaster activities, including post-disaster recovery and rehabilitation. A **National Disaster Risk Reduction and Management Centre** have been set up to operate warning, mitigating and proactive measures for extreme natural events including cyclones and landslides.
- (8) A prototype shelter for relocation of disaster prone people has been designed and refuge centre identified to complement disaster risks arising from climatic events.
- (9) A **new Building Control Act** was enacted in 2012 to address issues regarding building works in order to ensure safety, comfort and energy efficiency through the design of building and makes them more user and eco-friendly. The Act also provides for regulations and guidelines which will set the minimum building standards, disposal of construction waste and safety with a view to guaranteeing the minimum safety and comfort of the users.
- (10) **Planning Policy Guidance** have been prepared to guide developers and builders on precautions to take and design measures to safeguard proper water recharge and prevent impermeability of soils, orientation to minimise fossil energy consumption for cooling and heating and other energy efficiency measures.

- (11) 1.3 billion rupees has been committed for emergency works for construction, cleaning and maintenance of drains across the country to mitigate flooding risks.
- (12) A **Doppler Rader Facility** at the Meteorological Services is in the process of being installed to monitor cloud movement and rainfall in real time
- (13) Government with the support of the Adaptation Fund Board is undertaking a climate change adaptation programme in the coastal zone to increase climate resilience of communities and livelihoods through coastal protection works.
- (14) The collaboration of **Japan International Cooperation Agency (JICA)** has allowed the implementation of a series of projects regarding coastal rehabilitation in selected coastlines as well as defining areas at risk of landslides.
- (15) Government has set up a **Food Security Fund** to increase the resilience of Mauritius towards food self-sufficiency by increasing production of foodstuff locally and at the regional level by partnering with neighbouring countries.
- (16) The **Environment Protection (Standards for Air) Regulations 1998** prescribes for ambient air quality and stack emission limits for criteria pollutants. The standards are being reviewed to align our standards with the latest WHO and World Bank guidelines to take into consideration inter alia, coal power plants and incinerator stack emission.
- (17) During the last 15 years, Government has invested around MUR 15 billion in order to equip Mauritius with a reliable sewerage system currently covering 22.3% of the population. A **Mauritius Wastewater Master Plan Study** has been approved by Government in January 2012. The plan covers the period 2014-2033, which would be implemented in 2 phases and would cover about 80% of the population by 2033.
- (18) Under the long term energy strategy (2009-2025), a number of projects/programmed and legislations have been implemented:
  - (i) The Energy Efficiency Act 2011.
  - (ii) The Utility Regulatory Authority (URA) Act 2004 has been proclaimed.
  - (iii) The Energy Efficiency management office is operational since December 2011.
  - (iv) The “Observatoire de l’Energie” has been set up in 2011 and provides a national database on energy usage.

- (v) A certification system for energy auditors and energy managers is being developed.
- (vi) Design Guide for Energy Efficient Buildings less than 500m<sup>2</sup> have been developed.
- (vii) Energy Efficiency Building Code has been developed for buildings with a surface area of more than 500m<sup>2</sup> and will be implemented in due course.
- (viii) A report on Energy Audit Management Scheme for non-residential buildings has been prepared.

### 3.5 Challenges experienced and lessons learned

Urbanisation leads to concentration of population and activities, industries, an increase in impermeable surfaces (roads & buildings) reduction in vegetation, artificial drainage network. Urban areas accommodate 40% of total population on 8% of land area (average density 3,000 persons per square km).

The level of commuting has risen from 34 to 40% between 2000 to 2011 and is also highest in that built-up conurbation and closest surrounding districts with 110,000 of employed force plying along two main transport axis with morning and afternoon peak periods.

From 1995 to 2005, land under sugarcane has declined by 6%, tobacco plantations by 82% and forestry by 17%. Tobacco plantations declined from 691 hectares in 1995 to 173 hectares in 2012 representing a fall of 75%. Built-up areas have expanded by 28%. Only 112 km of new roads have been constructed during the preceding decade.

The table below shows the total length of roads all categories included during the 2002 to 2011 period. It is to be noted that 98% of all road categories are properly paved.

Year	Length of roads					% of paved roads	Density of total network in km per sq. km <sup>1</sup>	Number of vehicles per km of road
	Motorways	Main Roads	Secondary Roads	Other Roads	Total			
2002	60	950	592	398	2000	98	1.07	133
2003	75	950	592	398	2015	98	1.08	137
2004	75	955	592	398	2020	98	1.08	144
2005	75	955	592	398	2020	98	1.08	151
2006	75	955	593	398	2021	98	1.08	158
2007	75	962	593	398	2028	98	1.09	165
2008	75	962	593	398	2028	98	1.09	173
2009	75	1000	593	398	2066	98	1.11	177
2010	75	1014	593	398	2080	98	1.12	185
2011	82	1035	595	400	2112	98	1.13	190

<sup>1</sup> density of total network in km per sq. km is the ratio of the total number of km of roads to the area of Mauritius (1,865sqkm)

There were 400,919 vehicles in 2011 with an average rate of growth of 5%. At the same time, climatic changes worldwide bring forth wide ranging local effects with a definite warming of 0.74°Celsius when compared to the 1961 – 1990 long term mean. An isolated and highly vulnerable oceanic location further exacerbates climatic impacts with more extreme rainfall events, flash floods, increase in sea level rise (2.1mm/year), decreasing trend in annual rainfall of around 8% since the 1950's and coastal erosion.

The effect of climatic changes on the expansion of built-up areas coupled with changing lifestyles creates conditions which require careful handling in view of the wide ranging consequences. The most visible challenges experienced are increased air pollution with greenhouse gas emissions, increased run-off from built-up areas, and reduction of vegetation.

**Table 3.0: Observed and projected impacts of climate change**

<b>Observed impacts of climate change in Mauritius</b>	<b>Projected impacts of climate change in Mauritius</b>
Sea level has been rising by around 3.8 mm/year on average at Port Louis over the last 5 years and between 1998 & 2007, local mean sea level rose by 2.1 mm/year.	Sea level is expected to rise by up to 0.6 m by 2100.
Average temperature has risen by 0.740 <sup>0</sup> C when compared to the 1961-1990 mean	The average temperature is expected to increase up to 2 <sup>0</sup> C by 2061-2070 compared to 1996-2005.
Decreasing trend in annual rainfall of around 8% over Mauritius since the 1950s	Utilizable water resources will decrease by up to 13% by 2050.
An increase in the annual number of hot days and warm nights	Projections and trend analysis confirm that more frequent heat waves in summer and milder winters.
More frequent torrential rains resulting in flash flood	Increase in heavy precipitation events with increased risk of flash flood.
Increase in the frequency of extreme weather events, heavy rains and storms	Increase in the number of intense tropical cyclones and high energy waves (tidal surge).
Mauritius experienced its worst drought in 1999 and 2011	Increase in duration of dry spell.

Based on an analysis carried out in 2007, the National programme on Sustainable Consumption and Production (SCP) for Mauritius (2008-2013), showed that the absence of reliable data had obstructed the development of realistic and effective policies on environmental management in industry and had hindered measuring progress towards more sustainable industrial production. Additionally, improvement in eco-efficiency and eco-innovation had also shown little progress.

The energy consumption relies on fossil fuel which stands at a high 82% of the primary energy requirement. The share of renewable sources for production of electricity has decreased from 26% in 1996 to about 22.4% in 2007 with the share of fossil fuel (coal) rising to 40.3% during that same period.

The transport sector is another important source of air pollution. The share of final energy consumption shows that the transport sector is the single highest consumer of energy with 50.5% followed by the manufacturing sector at 25.7%. A number of indirect measures to ease pollution by reducing travel time with road improvement schemes, new and better roads have been taken thus reducing the carbon emissions.

The total production of carbon emission was at 3,640.8 of Gg or thousand tonnes (provisional figures) and only 289.6 of Gg or thousand tonnes have been removed with a net carbon emission of carbon dioxide at 3,351.1 of Gg or thousand tonnes. (Source: Digest of Environment Statistics 2011).

The percentage share of carbon dioxide emission is highest for the energy industries (electricity production) followed by the transport sector at 60.6% and 25.3% from 2002-2011.

The occurrence of extreme weather events leading to intense rainfall concentrated in time and duration is a major challenge to cope with. Increasingly, ground surface of urban areas are becoming impervious due to building footprints and other infrastructure, artificial drainage channels, inappropriate location of settlements and becoming vulnerable prone to floods. Natural drainage channels with mechanization of cultivation fields and real estate development have tampered with the natural flow of surface water and infiltration into ground. It is therefore essential that proper infrastructural works or the natural conditions prevailing prior to development are taken into consideration in development plans and necessary resources allocated.

### **3.6 Future challenges and issues**

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Fully aware of the possible impacts of climate change on our small island, its people and their livelihoods, Government with the collaboration of national and international partners has adopted a multi-pronged approach to deal with this issue. Government is focusing on several priority sectors like water, coastal zones, fisheries, tourism, public infrastructure, land use planning, health and agriculture and is acting at different levels ranging from long term planning mechanisms, institutional strengthening, policy and legislative review, outreach and demonstration projects.

Empirical studies and at various levels and in different sectors will have to be carried out and from information collected to allow issues to be tackled. The Government is embarking on the setting of a **National Spatial Data Infrastructure** in that respect and once operational, the agency will provide data sets on information which can be used for planning, monitoring and implementation of plans and projects.

At the local level, combating climate change requires ambitious and sustained actions. Several important projects are presently in the pipeline for implementation including further actions for adaptation to climate change, formulation of national climate change mitigation policy, strategy and action plan, implementation of technologies in the energy sector for reduction of greenhouse gases, the formulation of a new legal framework for climate change and the **preparation of the Third National Communication**. The implementation of these programmes and other future programmes will build the country's resilience and empower it to better adapt to the impacts of climate change so as to ensure a secure future for all.

Congestion on our roads, especially in urban areas, is a serious problem that is growing steadily worse with the growth in urbanization and industrialisation. Many of the urban streets carry traffic volumes for which they were not simply designed. The inevitable result is delay, congestion and road accidents.

The increase in income and standard of living will continue to drive up both vehicle ownership and energy use, thus increasing traffic on roads, more congestion and higher vehicular emissions. The total number of registered vehicles increased from 123,545 vehicles in 1990 to over 400,000 in 2011, representing an increase of 184.4%.

New measures have been planned to ensure that our road traffic congestion problems remain within manageable levels. The introduction of fiscal measures namely congestion pricing which is related to demand management is under study.

The introduction of a mass **Mauritius Light Rapid Transit Project** once implemented is likely to reduce congestion on roads and take off our roads low occupancy car borne traffic. To be fully effective, complementary bus transport and other shuttle services, coupled with a land use strategy to encourage high intensity development close to the transport corridor should be planned and implemented. This calls for a strong direction in the manner in which land for development is released. Emphasis should be also on using a pricing mechanism to reduce the demand for use of the road system and review of taxes and duties.

Mauritius is not directly affected by trans-boundary air pollution, but air quality is affected locally by anthropogenic sources, such as: industrial activities, transportation, electricity generation and occasional sugar cane burning during the harvest season. Recently, there has been a gradual shift from diesel to coal due to the latter's lower direct cost per unit of electricity production. During the past twenty years, energy strategies in Mauritius have been essentially geared towards meeting energy requirements. However, despite the introduction of a tariff structure, energy demand has continued to increase. This dependence on fossil fuel implies that as the economy develops emission level increases correspondingly.

In Mauritius, industries predominately use heavy fuel-oil and coal as fuel source and air pollution problems are mostly attributed to the quality of fuel, inefficient management of boilers and also to a lack of skilled and qualified people to operate boilers. In many of these areas, the absence of buffer zones between adjoining industrial estate and residential areas, have affected the residents.

Urban pollution in Mauritius is largely caused by exhaust emissions from the transport sector, especially from black smoke emissions from diesel-driven vehicles. It is also noted that about 40% of the bus fleet is aged between ten to eighteen years. Low fuel quality along with poor servicing, maintenance, overloading, age of vehicles and engine design contribute significantly to air pollution. Furthermore, despite government subsidies for public transport and import duties on vehicles, the growth in numbers of private vehicles has not stopped.

The Environment Protection (Standards for Air) Regulations 1998 prescribes for ambient air quality and stack emission limits for criteria pollutants. Experience gained in the implementation of these standards over the past years has revealed a number of loopholes. The lack of baseline data and regular monitoring constrain the identification of acute air pollution causes and their impacts. The Ministry of Environment and Sustainable Development is in the process of acquiring analyzers for monitoring ambient air quality.

While regulations have been promulgated on air quality; progress about monitoring and enforcement has been mixed. There is no continuous time series data on the evolution of air quality for a single location. Furthermore, there is a lack of trained technical staff to operate and ensure the maintenance of the air quality monitoring stations.

The Government of Mauritius is now aiming at increasing the share of renewable energy to 35% by 2025 in line with the Maurice Ile Durable vision.

Several measures have been taken to improve fuel quality in Mauritius in line with international trends.

The agricultural sector is climate dependent and may affect food supply from direct effects on crop production. Such pressures have led to increasing concerns about achieving food security. Government has set up a Food Security Fund to increase the resilience of Mauritius towards food self-sufficiency by increasing production of foodstuff locally and at the regional level by partnering with neighbouring countries.

## **IV Urban Governance and Legislation**

### **4.1 Improving urban legislation**

Legislation on urban management, functions and powers of local authorities exist and are updated to keep pace with changing needs of society. The existing Town and Country Planning Act 1954 though still in force have been strengthened by the enactment of a more proactive legislation in 2004. This legislation provides for the preparation of a national spatial framework and its approval. Thus previous spatial strategies namely the Mission d'Aménagement du Territoire de l'Île Maurice (MATIM) prepared in the seventies and the National Physical Development Plan (NPDP) could not be enforced nineties could not be implemented for lack of legislative support.

The Planning and Development Act 2004 has important sections pertaining to powers of Minister, preparation of plans and design standards and compensation have been proclaimed. It is proposed that a new Land Use Planning and Development be prepared to consolidate the provisions in the two legislations, streamline procedures for better preparation and review of planning instruments, modernize planning practice, define roles and responsibilities of different bodies, address funding and implementation mechanism of infrastructure to achieve clearly identified planning outcomes and identify ways to capture betterment value created by public works.

#### **Planning and Development Act 2004**

As the Town and Country Planning Act dates back to 1954, a new Planning and Development Act was prepared in 2004 to replace the old legislation. The objective of the new Act is to modernize town and country planning and make comprehensive provisions with respect to land use planning and development in a sustainable way in Mauritius.

#### **Building Control Act**

A new Building Control Act 2012 was enacted through a review of the existing Building Act 1919 with the incorporation of appropriate Building Regulations and Codes.

To encourage efficiency in buildings standards and design the new Building Control Act requires that buildings above 150m<sup>2</sup> are drawn by professional architect to guarantee a design quality.

The Act also makes provision for the setting up of a Building Control Advisory Council for the preparation of Building Regulations under this Act and for their regular updating in keeping with international norms and technological changes in equipment as well as in the building industry. The council has already been set up and is in operational. Regulations are under preparation to make the Act fully operational.

## **Local Government Act 2011**

The legislation governing the local authorities is the Local Government Act 2011. The Local Government Act 2011 provides for the management of all local authorities as defined by administrative boundaries. Boundaries were reviewed and minor adjustments made to facilitate the day to day management. Local Government on the Island of Mauritius is divided into urban and rural authorities. In the urban areas, there are five Municipal Councils, including the Capital, Port Louis, which has city status. In the rural areas there is currently a two-tier system of seven District Councils which oversee 130 Village Councils. There are 90 Municipal Councilors and 1170 Village Councilors (of which 147 are also District Councilors).

Control of development is the specific responsibility of local authorities. The Local Government Act has laid down the procedures for determining permits for development projects. They were streamlined and made more user friendly and at the same time providing for checks and balances to the system. Permits for small enterprises and handicraft enterprises are fast tracked and permits are issued within 3 working days instead of fourteen (14) working days for other category of developments. Flexible policies put in place allow work at home, home industries to improve participation of women in economic activities.

### **4.2 Decentralization and strengthening of local authorities**

Municipal and District Councils have several statutory duties, among which are the maintenance of roads and drains, the protection of the environmental, solid waste management and the promotion of cultured, leisure and sport activities.

The Ministry of Local Government and Outer Islands is responsible for overseeing local authorities. The Minister is responsible for issuing guidelines to local authorities for the smooth running of council matters. Local Government, grass-root democracy, is central to the well-being of communities. This requires that the population is well represented through democratic and fair elections and the services needed from the local authorities are efficiently delivered so that a higher standard of living for the local communities can be attained.

There is growing awareness that in all countries, especially the developing ones, local government should be at the forefront of the battle against poverty, in fight against slum dwellings, in the improvement of town and country planning, in the protection of our values, the living environment and historical sites.

Because of the growing challenges facing local government, the system should continuously be revisited and theories, philosophy and practices continuously re-engineered.

The Local Government Act of 2011, passed in the Mauritian National Assembly, has, among other things, provided more autonomy to local authorities to manage the affairs of their respective areas. It also provides more space for elected Councilors to participate in the decision-making process.

Municipal and District Councils have several statutory duties among which are the maintenance of roads and drains, the protection of the environment, solid waste management and the promotion of cultural and leisure and sport activities.

The Ministry of Local Government and Outer Islands is responsible for overseeing local authorities. The Minister is responsible for issuing guidelines to local authorities for the smooth running of council matters. Additional measures have been introduced to enhance checks and balances, to guard against arbitrary exercise of powers and to better respond to the needs to the citizens.

Women's participation and representation in the frontline of democracy is crucial. For women to be able to influence decisions that affect their lives and those of their families, their political, social and economic empowerment must form part of the democratic ideal that contributes to sustainable development. In fact, since in Mauritius women constitute more than half of the population, sustainable development cannot be achieved without them. Democracy and development thus need to be seen as mutually reinforcing goals essential to the achievement of gender equality.

The Local Government Act 2011 ensures that not more than two thirds of a political party's candidates are of the same gender. As such, there is no reserved quota for women, but rather a gender-neutral provision that has increased the number of female candidates four-fold.

Following the last local government elections held in 2012, 32 Municipal Councilors (36%) and 301 Village Councilors (26%) are women.

### **4.3 Improving participation and human rights in urban development**

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Human Rights provisions are enshrined in the Constitution, which guarantees to all citizens the right to equal protection and benefit of the law without discrimination based on race, caste, colour, sex, religious beliefs, place of origin and political opinions.

Mauritius as a Small Island Developing State is committed to ensuring that every Mauritian citizen enjoys to the fullest extent his or her civil and political rights as well as economic, social and cultural rights. A number of legislative measures have been adopted to warrant effective exercise of civil, political, economic, social and cultural rights, to maintain an environment conducive for equal opportunities for all and to sustain a cohesive and harmonious society in our multi-racial and multi-ethnic island state.

The Community Policing Officer who is the Station Manager of the Police Station and Neighbourhood Officers who work in close collaboration with the Community Representative address policing and non-policing issues through regular consultations (Community Forums). Such consultation allows for solving a number of urban safety and security issues with the support of other governmental and non-governmental agencies.

Municipal and Village Councils play crucial roles in attending to Urban Safety issues when it pertains to infrastructural matters and participate in the Community Policing Forum in order to promote safety and security of local residents.

The Planning Legislation provides formal consultation of the public and all land owners in the plan making process. The elected representatives of all local authorities are the planning committee which is empowered to submit its views and proposals whereas the general public is also given opportunities to make representations with respect to proposals. Even after formal approval of development plans there is a delay for aggrieved persons to challenge the plans.

The Local Government Act includes provisions whereby elected representatives can review technical recommendations on applications for a more humane approach.

Similarly, the land use policies have enabling policies to address hardship cases for small landowners to help them have access to land for residential development subject to a few criteria regarding connection to infrastructure and utilities being complied with.

#### **4.4 Enhancing urban safety and security**

Urban Safety and Security encompasses a wide range of concerns and with a rapid urban growth and uneven social economic development there is concern about the safety and security of people in general.

The world is witnessing an increasing number of threats to urban safety, crime and violence and other security issues which affect the life of the community. There has also been the dramatic impact of natural, climate change and other human induced disruptions which are also linked to safety and security of the population at large.

The Government of Mauritius has since February 2010 undertook a Reform Programme of the Police Structure to address Safety and Security under a National Policing Strategic Framework for ensuring safety and security at national level fall under the responsibility of the Mauritius Police Force.

The National Policing Strategic Framework (NPSF) proposes a modern methodology and a policing philosophy to address the emerging security issues faced by Mauritius in a contemporary context. The NPSF relies primarily on the Community Policing pillar as a stepping stone and the participation of the Community and stakeholders concerned in addressing root causes of insecurity.

## Road Safety

Major co-ordinated road safety campaigns to raise awareness on risks and accident on roads and to modify road users attitude and behaviour on issues such as drink-driving, speeding, use of cellular phones while driving are also conducted.

A National Strategic Road Safety Plan 2011-2020 was put in place and the implementation of the Decade of Action for road safety 2011-2020 is already operational.

Action Plans have been devised and are being systematically for elimination of accident black spots.

### 4.5 Improving social inclusion and equity

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Available data shows the population living below the poverty line of USD 1.25 (PPP) per day, is non-existent. However, the proportion of households below the relative poverty line as defined in Mauritius, based on half median monthly household income per adult equivalent, has increased from 7.9% in 2006/07 to 9.4% in 2012.

Income inequality has further increased between 2006/07 and 2012 with the Gini coefficient increasing from 0.388 in 2006/07 to 0.414 in 2012. The share of total income going to the 20% of households at the lower end of the income range which was 6.4% in 2001/02 has decreased further from 6.1% in 2006/07 to 5.3% in 2012. On the other hand, the share of income of the upper 20% of households increased from 45.6% in 2001/02 to 47.5% in 2012, reflecting growing income inequalities.

In 2008, the government created the National Empowerment Foundation to have a more comprehensive and holistic approach to poverty reduction. Following the creation of the Ministry of Social Integration and Economic Empowerment in 2010, the National Empowerment Foundation became its operating arm. In 2009, the government also introduced a framework for Corporate Social Responsibility (CSR) which mandates companies to pay 2% of their book profits to contribute to poverty alleviation, human development and environmental protection. The CSR is directed towards a range of programmes of which the priority areas are: social housing, absolute poverty and community empowerment, welfare of children from vulnerable groups, and prevention of non-communicable diseases.

Mauritius has a comprehensive social security system articulated around a social assistance schemes and a universal system of non-contributory pension for the elderly, the disabled, widows and children, contributory pension schemes for public and private employees, a provident savings scheme funded by both public and private employers and government subsidies on food, housing, free education and health services for all and free transport for the elderly and students.

The cost of the social security system represented 6.6% of GDP in 2012. The government is using the Social Register of Mauritius for better targeting of some social security programs.

#### 4.6 Challenges experienced and lessons learned

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On average, about 150 road traffic fatalities are reported annually [136 in 2013, 156 in 2012, 152 in 2011, 158 in 2010 and 140 in 2009]. This corresponds to a fatality rate of about *0.4 fatalities per 1000 vehicles* or about *12 fatalities per 100,000 inhabitants*. Since the implementation of the Penalty Point System and the introduction of speed cameras coupled with the intensification programme of speed limit control on roads at hazardous locations, the number of fatal road accidents and deaths on our roads have decreased by 17.4% and 12.8% as compared to last year. It is expected that there will be a decrease in the rate of road traffic accidents in the near future as there are fifteen new speed cameras which are presently being installed at known accident black spot locations.

#### 4.7 Future challenges and issues

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However, there are major challenges which lie ahead in order to raise the awareness of each and every citizen and adopt security measures and to enhance safety and security on roads. Other road safety interventions which are being worked out are as follows:

- Driver Education and Training Centre
- Introduction of the probationary driving license and
- Improvement of the existing road infrastructure and road furniture.

The Police are amongst the primary agencies which are called upon to attend to victims and casualties in advent of cyclones, flash floods and wave surges. Issues of urban safety and security are addressed in joint collaboration with governmental and local authorities within the Community Policing structure. NGOs and Community based Organization and the community at large should work together with the Police to attend to all issues related to safety and security of the citizens.

Better management of our urban areas will have to focus on issues better use of land, promoting more mixed land uses without compromising on quality of life. The urban strategy should also improve urban governance and better financing mechanisms for infrastructure and services.

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## V. Urban economy

### 5.1 Improving municipal/local finance

Local authorities operate through grants supplied by the Central Government. The amount is calculated according to prescribed formula. The local authorities are also empowered to raise funds as may be required for projects upon approval of their parent ministry. Additional funds are raised through local taxes which consist of annual local rate on immovable property owners, trade fees on businesses and activities carried out within local area boundaries. The Minister is also responsible for allocating "grant in aid" and other funds for capital projects and approving the finances of councils.

### 5.2 Strengthening and improving access to housing finance

Government has put up several schemes to facilitate access to housing finance based on income eligibility criteria.

Since 1996, 50,000 people have already benefitted from the roof slab grant.

Existing Housing Schemes	Income Eligibility	Implementation Agency	Details of Scheme
<b>Roof Slab Grant</b>	≤Rs8,500	Ministry of Housing and Lands / NHDC MOFED	Households who own a plot of land but cannot afford to complete construction of their house. One-off cash grant of Rs 65, 000 for Slab of 100m <sup>2</sup> . Scheme is open to self-employed.
<b>Purchase of Building Materials</b>	≤Rs5,000	Ministry of Housing and Lands / NHDC MOFED	Households who own a plot of land but cannot afford to start construction of a housing unit of maximum Rs 55,000.
<b>Purchase of an NHDC Housing Unit</b>	≤Rs12,000	Ministry of Housing and Lands / NHDC	Subsidy for Interest differential Refund of Registration duty of 5% for the purchase of NHDC low and very low cost housing units. Households are given possibility to extend units vertically and horizontally.
<b>6.5% Government Sponsored Loan (GSL)</b>	≤Rs8,500	MOFED/ MHC	Interest: 6.5% Yrs. 1-5 8.0% Yrs. 6-10 10.0% remaining GSL Grant: Rs33,000 Loan Ceiling: Rs325,000

Existing Housing Schemes	Income Eligibility	Implementation Agency	Details of Scheme
<b>10% Government Sponsored Loan (GSL)</b>	<Rs10,000	MOFED/ MHC	Interest: 10% Yrs. 1-5 12% Yrs. 6-10 - end No GSL grant Loan Ceiling : Rs325,000
<b>Sites and Services Scheme</b>	Rs8,500 and Rs16,000	Ministry of Housing and Lands / NHDC	Lease period for rent: up to 30th June 2060. Own arrangements for housing finance. Annual rental of Rs3, 000 up to year 2060.

**Table: Actual and Planned Budgetary Funds for Social Housing**

	2012 million (Rs) Actual	2013 million (Rs) Revised	2014 million(Rs) Estimates	2015 million(Rs) Planned	2016 million (Rs) Planned
Social Housing Projects for low income Groups	1	30	517	674	301
Social Housing for Vulnerable Groups	-	-	184	162	147
Social Housing for Middle income groups	-	-	4	4	4
Other Social Housing Related Projects	-	-	330	234	93
<b>Total</b>	<b>1</b>	<b>30</b>	<b>1035</b>	<b>1074</b>	<b>545</b>

*Source: Ministry of Finance & Economic Development*

### 5.3 Supporting local economic development

Local economic development implies promotion of employment based on local area's characteristics and strengthening opportunities for decent work strategy. As the island is relatively small and easily accessible, employment opportunities are available and within reach of employees. With globalisation and abolition of trade tariffs, reduction in sugar prices and other related issues, local issues regarding employment cropped up especially in the agricultural sector. The share of agriculture in GDP fell from 5.2% in 2002 to 3.2% in 2011. The area under sugarcane which used to be the main agricultural activity decreased from 76,840 hectares in 1995 to 59,724 hectares in 2011, going from 41.2% to 32% of the total land use in the island.

This not only led to a lot of redundant labour but cut short any further employment opportunities in that sector for new labour force.

The unemployment rate in the island stands at around 7.9% and tends to be higher for women. To address the employment problem emphasis is put on enhanced educational opportunities to increase employability of job seekers in the financial and services sector. Thus, the tertiary sector is becoming increasingly important in terms of employment, accounting for 63% of employment in 2011 compared to 49% in 2000.

Development schemes encourage development of sites for small and medium enterprises to provide local employment opportunities. Policies also encourage the setting of starter industries within the residential premises provided necessary precautions are taken to protect amenities on the neighbourhood. Similarly in certain cases where the activity can be carried out without modification of the house and does not involve any adverse impacts on residents, there is no need to seek planning permission and activities can be carried out with payment of trade fees and with business registration.

#### 5.4 Creating decent jobs and livelihoods

Small and Medium Enterprises (SMEs) play an important, perhaps a major, role in employment creation. In Mauritius, the SME sector is increasingly being recognized as one of the powerful economic forces, comprising the lion's share of employment and GDP (39.2%).

Job creation in the SME sector can be in the following ways:

- Self-Employment – the owner creating his/her own job;
- Creation of a number of conventional jobs; and
- Creation of indirect jobs.

In the right business environment, SMEs can grow into large firms but even by remaining small or mid-size; they can create significant income opportunities given that the labour intensity of the SME sector is much higher than that of large enterprises.

The SME sector provides a living to 57.3% of the total working population estimated at around 306,900. The share of employment is high in the wholesale and retail trade sector accounting for 81,500 jobs (32%) and the construction sector accounting for 48 100 jobs (19%).

s/n	Sector	Employment Figures (2012) (000)
1.	Agriculture	36.2
2.	Manufacturing	41.0
3.	Construction	48.1
4.	Wholesale and Retail Trade	81.5
5.	Hotels and Restaurants	16.8
6.	Transport, Storage and Communications	25.1
7.	Real Estate	11.0
8.	Other Services	36.0

Government's effort in promoting an entrepreneurship culture in conjunction with easier access to finance and enhanced institutional support have instilled the need for own micro and small business. Consequently, the proportion of Own account<sup>1</sup> and Contributing Family Workers<sup>2</sup> to overall employment has increased steadily from 12.9 in 2000 to 16.7 in 2012<sup>3</sup>. This has been due to the booming and resilient domestic economy owing to the uptake of entrepreneurship.

<sup>1</sup>. An Own account worker is a person who operates his/her own business or trade but does not hire employees. He/she may be working alone or with the help of contributing family workers.

<sup>2</sup>. A Contributing family worker is a person who works without pay in an enterprise operated by a family member.

<sup>3</sup>. Source: Statistics Mauritius, Millennium Development Goals – Status Report 2013

### **Start-Up Entrepreneurship Scheme (SES) run by the Mauritius Business Growth Scheme (MBGS)**

This scheme enables creative entrepreneurs to be paid a monthly salary for one year through MBGS, in order to “make the jump” into a new, creative and innovative business. The scheme subsidizes selected start-ups entrepreneurs by paying a basic monthly salary of Rs 20,000, for a period of one year, hence providing avenues for job creation.

## **5.5 Integration of the urban economy into national development policy**

Based on the 2011 Housing and Population Census data, there were 506,783 employed population aged 16 years and over in the island of Mauritius, of whom 502,248 worked in the island. The two districts with the highest number of workers are the two urban districts, namely Port Louis and Plaines Wilhems which provided work for 97,851 and 144,807 workers respectively, accounting for the highest number of workplace with 40% of the total employment. Given the central location of these two districts, between 2000 and 2011, the proportion of employed persons who are commuting increased from 34% to 40% with Port Louis remaining the district receiving the highest number of commuters (66,800) though this number is stabilizing over time. They are closely followed by the rural districts on the periphery of the two urban districts. This indicates the importance of the urban centres in the economy.

The National Development Strategy (NDS) in its land use framework advocates key development principles aimed of optimizing and making the best use of transport infrastructure with a pattern of development tending towards concentration of people and activities rather than dispersal.

- Strategic growth clusters are promoted in places which have an advantage in view of accessibility close to major highway and public transport network;
- in all growth centres, development of mixed uses are encouraged by raising development densities, thus reducing travel time and offering more options by public transport and reducing reliance on car; and

- Proposals are set out in the core strategy to support use of urban public transport facilities and network so that the conurbation which accommodates around the island population in the form of a linear urban corridor develops adequate ridership and at the same time clusters economic, residential and leisure uses to optimize most sustainable transport options.

As a result of which, the NDS recommended that a Light Rail Transport (LRT) be introduced to relieve chronic traffic problems, discourage car trips to town centres, reduce dependency on cars for journeys to work and improve the quality of public transport on the island.

The NDS also proposed that the alignment of the LRT would link the town centres of the conurbation and development would be clustered around the town centres and the LRT stations. Town centre redevelopment around these stations would thus be a central component in bringing people, jobs and leisure back to the town centres and promote higher densities and mixed use development for a dynamic and vibrant urban life.

These concepts have thus been translated in the Urban Outline Schemes which will soon become operational. These statutory planning instruments have promoted higher densities in the city and town centres, redevelopment to reduce dependency on the private cars especially for journeys to work and to promote sustainable cities and towns.

## 5.6 Challenges experienced and lessons learned

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Evidence has shown that jobs in the micro enterprise sector are often characterised as being low in productivity and hence low income in character.

The informal sector provides jobs and self-employment opportunities that are not taxed or subject to government regulations; and in many cases these jobs are low-paid and job security is poor.

Lack of information available on job creation by SMEs, especially micro enterprises and the quality of the jobs these enterprises provide.

Employees in SMEs tend to receive lower wage levels than in large enterprises. Possible explanations include:-

- Larger Firms have more financial resources;
- SMEs can better monitor individual employees, whereas large enterprises pay a premium to avoid shirking;
- Family owned and managed enterprises pay less and are relatively often SMEs;
- Gross employment destruction tends to be higher in SMEs, given that the risk of enterprise death is much higher in SMEs. As such employees in Micro, Small and Medium Enterprise face job insecurity.

## Access to Finance

Access to finance has always been one of the most challenging aspects for SMEs. The high cost of credit impedes the drive of entrepreneurs, threatening their sustainability, growth, profitability and competitiveness of the SME sector. In order to remedy this situation, the Government has put in place several schemes aimed at maintaining the flow of credit to SMEs and improving their access to capital markets and maintaining their existence, such as:

- RWG Credit financing scheme (Factoring)
- SME Financing Scheme
- Import Loan Facility
- SME Partnership Fund
- DBM Financing Schemes

Despite the various schemes aimed at SME development, access to finance is still limited as SMEs are unable to satisfy the conditions to benefit from the schemes, namely the provision of collaterals and guarantees to secure credit facilities. In order to address this, Government has introduced the Loan Guarantee Scheme, as announced in Budget 2014. The Scheme aims at providing financing to entrepreneurs without the need to provide collateral and third party guarantees.

### 5.7 Future challenges and issues

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The main challenge for the urban areas will be to deliver effective urban management in the light of slow economic growth, land use challenges, growing degradation of the quality of life and climate change issues. The link between planning and implementation has to be bridged so that cities continue to be the main drivers of the economy and innovation.

The integration of land use and transport supported by a coherent and sustainable public transport policy is seen as been the main pathway to smart compact cities. In Mauritius more than 80% of the land is privately owned with some very big land owners having the bulk of land in their possession. This is a major game changer. There is a need to reconcile the interests of the State with those of the landowners. There is an urgency to find alternative productive uses for sugar cane land which presently provides real estate development possibilities. Whether landowners can be coaxed into diversifying into reforestation, production of bio fuel plants and food production would be major challenges.

Access to finance and improving the municipal/local finance require innovative practices not raise finance and through asset management. A number of services are offered free of charge by local authorities. Ways and means to recoup at least the operating costs should be investigated. Similarly the roads within the local authorities except those classified as main roads are under the responsibility of local authorities.

Yet all parking charges accrue to central government. Local authorities could have additional revenue through payment of fees, charges and thus be able to offer better services and invest any surplus to prove the services.

Taxation policies to bring in more land assets under purview could be explored. Presently bare land is not subject to any payment of tax. Yet there is a cost of maintaining the infrastructure required to service the site.

The informal sector very often operates on the limits of illegality. Additional revenue could be obtained by regularising some activities.

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## VI. Housing and Basic Services

### 6.1. Slum upgrading and prevention

Mauritius does not define a slum according to UN Habitat criteria, however latest statistics show that there are 152 pockets of poverty island-wide, involving some 12,839 families<sup>1</sup>. UN-HABITAT defines a slum household as a group of individuals living under the same roof in an urban area who lack one or more of the following:

1. Durable housing of a permanent nature that protects against extreme climate conditions.
2. Sufficient living space which means not more than three people sharing the same room.
3. Easy access to safe water in sufficient amounts at an affordable price.
4. Access to adequate sanitation in the form of a private or public toilet shared by a reasonable number of people.
5. Security of tenure that prevents forced evictions.

Not all slums are homogeneous and not all slum dwellers suffer from the same degree of deprivation. The degree of deprivation depends on how many of the five conditions that define slums are prevalent within a slum household.

To cater for low income population, the Government of Mauritius has set up different ministries and organisations to target the needs and provide housing programmes. These organizations have a two pronged approach in dealing with slum upgrading and prevention. The first concerns concentrates on actions regarding welfare, reducing unemployment and related measures whilst the second type of intervention seeks to improve the living conditions, security of tenure or access to housing/land.

Mauritius, through the Ministry of Housing and Lands has entered in the Participatory Slum Upgrading Programme (PSUP) in collaboration with UN Habitat. It promotes the improvement of existing settlements at their current location and considers resettlement only under specific conditions. One of the main criteria for slum selection is security of tenure.

The first (1<sup>st</sup>) phase of the PSUP has ended with the selection of three areas for urban profiling and Phase II of the PSUP has recently been launched and is about action planning and programme formulation for the three areas.

#### **Regularizing residential squatters**

In 2004, a Government policy was introduced towards regularizing pre-July 2001 residential squatters (illegal occupations) by the grant of building site leases expiring in the year 2060. As such some 2,700 squatters have been regularized and now hold long term formal leases over the sites occupied. They have also been given wooden and corrugated iron sheet structures for free.

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<sup>1</sup>Source: Housing Division, 2014

## **Squatter Prevention Unit**

The squatter unit works in collaboration with the Ministry of Social Security, National Solidarity and Reform Institutions, with their department of Social Aid & Unemployment Hardship relief relevant ministries to intervene when squatters are in hardship and need to find a shelter and security.

So far, 3,288 squatters have been identified dating back to 2005 and 781 additional have been detected since 2005. A total of 3,043 have been regularized since. Regarding 432 cases remaining since 2005, action is being taken for their regularization in situ or relocation in case the sites squatted upon form part of unbuildable sites, ex-railway lands and State Lands earmarked for Government Projects – and for the remaining, each case is looked into on a case to case basis in close collaboration with partner ministries.

### **6.2. Improving access to adequate housing**

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The main objective of government is to provide access to housing for the low, lower-middle and middle income groups in the next ten years. Land in the island is mostly privately owned, (more than 80%). Hence the housing policy is framed to target access to affordable housing for the lower income groups.

- (i) Provision of core housing to the low, lower middle and middle income groups.
- (i) Access to land for housing purposes.
- (ii) Provision of building site leases (BSL) to low and lower-middle income families for housing construction.
- (iii) Provision of serviced plots of land to lower-middle income group.
- (iv) Grants for the Casting of Roof Slab / for the Purchase of building materials.
- (v) Access to finance and Loan facilities.

Government intervention in social housing in Mauritius dates as far as 1955 and has constructed 19,442 low cost housing units across the island which were leased to the tenants.

In the year 1989, the "right to buy" policy was set up by Government to empower them to become owner of their ex-CHA housing unit. As at date, almost all the CHA beneficiaries have become owners of their housing unit.

This policy has been extended since 2007 to the sale of State Land on which stand these houses. The plot of land is being sold to owners at a nominal price of Rs 2,000. Some 10,000 families are now full owners of their land.

Following the closure of the CHA, the National Housing Development Company Ltd (NHDC) was set up in 1991 to act as the executive arm of the Ministry of Housing and Lands in housing development. So far the NHDC has provided some 12,000 housing units and 300 serviced plots to needy families.

Government also encourages self-help construction of housing units by very low to low income families who already own a plot of land. These families are financially assisted through a grant scheme either for the casting of roof slabs to complete their construction or for the purchase of building materials to start their construction. As at date, some 50,989 families have benefited from that scheme and Government has spent some Rs. 2.1 Billion.

The Ministry of Housing and Lands has granted some 17,000 building sites leases on State Lands to enable families to construct their own houses.

In line with the Social Housing Policy, the objectives of the National Housing Programme for the next ten years are for Government to provide access for housing to the low, lower middle and middle income groups i.e., families earning a monthly household income of up to Rs 25,000.

- (i) the construction and sale of 10,000 housing units on State Land,
- (ii) The provision of 5,000 serviced lots (provided with roads, water, electricity, drainage etc.) over State Land for lease as building sites. Rentals are at a yearly rate of Rs. 3,000, with a 50% increase for each subsequent period of 10 years up to the year 2060. Beneficiaries of serviced lots will have to construct their own houses.
- (iii) Provision of land as and when required for construction of houses for those families earning less than Rs. 6200.
- (iv) The housing units are built and sold families earning less than Rs.10,000 have to pay only one third of the total costs (building and infrastructure costs) as the remaining two-third is subsidized by Government. Beneficiaries settle the costs of the houses via cash deposits and Government sponsored loans from financial institutions at low interest rates. All beneficiaries are granted a long term residential lease on the plot of land. Annual rentals for leases regarding sites built up with a housing unit are at a nominal rate based on the beneficiaries income.

The above housing strategies are extended to inhabitants of islands forming part of the Republic of Mauritius, namely, Rodrigues, Agalega and St Brandon.

For Rodrigues, there is a Commission for Public Infrastructure, Housing, Transport and Water Resources, which vision is to provide a home to each Rodriguan family. Its mission is to formulate housing policies/strategies and implement housing projects, aligned with the National Housing Programme of Mauritius and considering the realities of Rodriguan families. While in 2013, some 460 social houses have been built, for the year 2014, some 250 houses are proposed to be constructed for poor families who have also already been granted residential leases over State land. Moreover, the casting of slab and purchase of building materials scheme is also extended to Rodriguan families.

Regarding Agalega and St Brandon, social housing is cared for by the Outer Island Development Corporation, under the aegis of the Ministry of Local Government and Outer Islands.<sup>2</sup>

Government through its implementing agencies such as the NHDC has provided around 12,000 housing units to needy families. Some 9,992 families have also become full owners of their land under the “Right to Buy” policy regarding the sale of State Land on which stand the CHA houses. A holistic approach in the criteria for selection of sites for social housing projects is used to lower construction costs, and facilitates access to existing socio-economic infrastructure.

Some 700 Arpents of land for social housing will be made available under an agreement between Government and the Mauritius Sugar Producers Association, p to now, some 135 Arpents have already been acquired and negotiations are ongoing for regular release of the agreed sites<sup>3</sup>.

### **Provision of Housing units/serviced plots**

The programme comprises three mixed housing development schemes consisting of the construction of housing units of approximately 39m<sup>2</sup> for monthly income range below Rs10,000 and the provision of serviced plots of State land for monthly income range below Rs 25,000.

The National Empowerment Foundation, under the Social Housing and Community Development Programme operates three housing schemes, namely Corrugated Iron Sheet (CIS), Concrete cum Corrugated Iron Sheet (CCIS) and an Integrated Social Housing Scheme in Mauritius and a Concrete Housing Scheme in Rodrigues for vulnerable families living below the poverty threshold. Since 2005, more than 5000 CIS housing units, 500 CCIS units and 300 housing units have been constructed in Rodrigues, since 2008, building materials have been provided to some 1500 vulnerable families.

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<sup>2</sup> National Human Rights Action Plan 2012-2020, MoHL, 24 January 2014, p.1.

<sup>3</sup> National Human Rights Action Plan 2012-2020, MoHL, 24 January 2014, p.2.

As from 2013, a new Scheme has been introduced for the upgrading of housing units of vulnerable families living below poverty threshold. The Foundation also implements infrastructural projects (access roads, drains and street lighting) in deprived regions to improve living environment.

<b>Existing Housing Scheme</b>	<b>Income Eligibility</b>	<b>Implementation Agency</b>	<b>Details of Scheme</b>
Corrugated Iron Sheet (CIS) Housing Scheme	≤6,200	Ministry of Social Integration and Economic Empowerment/National Empowerment Foundation	Emergency corrugated iron sheet shelters provided free of charge to vulnerable households who do not possess a plot of land and are living in very deplorable conditions.
Concrete cum Corrugated Iron Sheet (CCIS) Housing Scheme	≤6,200	Ministry of Social Integration and Economic Empowerment/National Empowerment Foundation	Concrete housing unit with CIS roofs provided to vulnerable households who are owners of a plot of land or land on lease.  Beneficiaries are required to reimburse around 15% of the cost of the housing unit over a period of 7 years without interest and have to enter into a Social Contract with the Foundation.
Social Integrated Housing Scheme	≤6,200	Ministry of Social Integration and Economic Empowerment/National Empowerment Foundation	Concrete housing units with infrastructural facilities provided to vulnerable households who are landless and are living in very deplorable and overcrowded conditions.  Beneficiaries have to reimburse the cost of the housing unit over a period of 15 to 20 years and enter into a Social Contract with the Foundation.

Housing units are designed at a minimum area of 39m<sup>2</sup> and equipped with all the basic utilities, for families earning between Rs. 6,200 and Rs. 10,000. The size and design of plots of land also enable both future horizontal and vertical extensions of the core housing units, so as to address the livability issues, particularly for families comprising several children.

## Roof Slab Grants and purchase of building materials

Government also encourages self-help construction of housing units by very low to low income families who already own a plot of land. These families are financially assisted through a grant scheme either for the casting of roof slabs to complete their construction or for the purchase of building materials to start their construction. Some 50,989 families have benefited from the Roof Slab Grants and purchase of building materials scheme and Government has spent some Rs. 2.1 Billion.

## Private Developers

Housing development for mainly the middle, upper middle, and upper class people are carried out privately through subdivision (morcellements) which put serviced land on the market, individual construction and apartment projects.

Housing and living conditions improved from 2000 to 2011 with higher proportions of households owning their houses (from 86.5% to 88.8%). 2,114 persons representing 708 households neither own their house, rent nor enjoy free housing. 11 out of those households were homeless. Access to adequate housing includes those who own their houses, rent or enjoy free housing.

## Indicators

The following indicators are based on the Housing and Population Census 2011 Volume 1: Housing and Living Conditions. The number of urban population enumerated at Census 2011 was 487,393.

Indicators		%
1	% of People living in slums* (Pockets of Poverty) :	1
2	% of People residing in urban areas with access to safe drinking water :	99.84
3	% of People residing in urban areas with adequate housing :	99.57
4 a)	% of People residing in urban areas with access to adequate sanitation (Toilet Facilities):	99.92
4 b)	% of People residing in urban areas with access to adequate sanitation (Bathing Facilities):	99.94
5	% of People residing in urban areas with access to regular waste collection	99.01
6	% of People residing in urban areas with clean domestic energy :	99.77

\*. (No slum but 152 pockets of poverty comprising 12,839 families)<sup>4</sup>

<sup>4</sup>According to definition of the Ministry of Finance & Economic Development, but not as per slum definition of UN Habitat.

## **The role of Non-Governmental Organizations**

NGOs are developing social housing projects ranging from 10 units to 40 unit villages, answering the needs of the local population where they are located, and providing help to challenge the housing shortage in the country. They implement projects themselves in collaboration with the private sector and the NEF and or NHDC. Furthermore, they are active in advocacy to lobby for decent housing conditions at the level of the different ministries.

The National Empowerment Foundation works in close collaboration with a wide range of social partners including other government institutions, non-governmental organisations, development partners and the private sector to implement its programmes. Under the Corporate Social Responsibility programme, the private sector partners with the Foundation in the financing of the construction of CCIS housing units and housing units under the Integrated Social housing Scheme. The private sector is also encouraged to adopt poverty areas and implement projects within an integrated approach.

### **6.3 Ensuring sustainable access to safe drinking water**

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#### **Water Supply Coverage**

Water supply coverage in Mauritius is close to 100%. In fact, some 99.8% of the population is connected to the water supply network. The remaining 0.2%, which normally comprises squatters or some people located in remote areas, has recourse to public fountains, water tanker facilities and rivers for the daily water needs. During a normal/rainy season, as high as 85% of the population receives some 24 hours supply a day. In our country, there is no disparity between rural and urban access to water. Besides, Mauritius has achieved the millennium development goal as set by UN as far as access to safe drinking water is concerned.

#### **Water Demand**

The number of consumers for piped water supply is around 341,620 as at December 2013. This reflects more the less the number of households as per the 2011 census which stands at 346,000. The difference may be attributed to either households sharing one account or some squatters. The water rates applied by the Water Authority are considered to be one of the lowest in the world. These tariffs are based on social considerations so as not to hamper social and economic progress of the country. Nearly a third of the domestic households pays a low price of Rs55 (less than 2 USD) for a monthly consumption), which applies to consumption levels of less than or equal to 10 m<sup>3</sup>/month. The per capita daily domestic water consumption (2013) was 165 litre/head, while per capita daily water consumption (total all sectors) was 216 lhd. The water demand is forecasted to increase at an average annual rate ranging between 2-3%.

Now that universal coverage has been attained, the next step will be to ensure a performing network amid an environment of uncertain economic growth, climate change, and future growth linked to changing life styles.

The water tank grant scheme was introduced by Government during the drought experience of 2010-2011 and by end 2013, some 19,066 applications for water tank facilities were approved for modest income groups.

The Central Water Authority regularly conducts save water campaigns in schools and other flora, leaflets and brochures on save water tips are distributed to encourage the judicious use of water. Promotion of concept of rainwater harvesting, water tap aerators are also carried out.

#### **6.4. Ensuring sustainable access to basic sanitation and drainage**

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Almost the whole of the population has access to sanitation facilities, either through on-site disposal or the sewer system. In order to sustain its rapid economic growth and preserve the country's fragile environment, Mauritius has to address environmental issues and rapid changes in the use of water and land resources. The country's first National Environmental Action Plan (NEAP) was prepared in 1990 and identified the need for new wastewater infrastructure to mitigate environmental degradation. In 1994, the sewerage Master Plan provided an overall framework and strategy for improvements in the sanitation sector, identifying a series of projects to be realized over the next twenty years until 2013.

The implementation of the plan started in 1999 with the establishment of the Wastewater Management Authority by the WMA Act of 2000. The WMA plays a vital role in the protection of the environment and public health against wastewater pollution generated from both public and private/industrial activities. The main tasks of the WMA are to implement new wastewater projects, manage the operation and maintenance of existing wastewater facilities, ensure that the use of technology for wastewater treatments are economic and environment friendly and coordinate studies for research and investigate for economic collection, treatment and safe disposal of wastewater.

During the last 15 years, Government has invested around MUR 15 billion in order to equip Mauritius with a reliable sewerage system currently covering 22.3% of the population. The two urban districts are sewered at 86% and 38% respectively followed by the peri-urban districts which are sewered between 5% and 10%. As regards the long term economic strategies and plans of the WMA, Government has approved, in January 2012, the Mauritius Wastewater Master Plan Study which covers the period 2014-2033, which would be implemented in 2 phases and would cater to cover about 80% of the population by **2033**.

Similarly, the urban areas are relatively well connected to proper sewage systems as compared to rural areas. Thus in 2011, the two urban districts were connected to the rate of 87% and 38%, respectively while the rural districts were far behind with a connection rate below 10%.

## Sanitation

Recent health statistics on waterborne diseases show their prevalence is fairly small in Mauritius and Rodrigues. There has been considerable decrease in water-borne, water related and water-vector diseases over the past years owing to a significant improvement in basic sanitation in Mauritius, and better water and wastewater management strategies. Government plans to provide at least 80% of the population with sewer facilities by 2033. Approximately 20% of the Mauritian population living in small villages or sparse groups of houses that are too remote from centralised treatment systems, will continue to rely on on-site sanitation systems beyond year 2033. Planning regulations controlling construction of housing require compliance with improved onsite site disposal systems.

### Private households by geographical location and connection to sewerage system

#### Housing and Population Census 2011

Geographical location Sewerage system	Population by Geographical location	Total No of Households	Households Not connected	Households Connected	Connected to Sewage system (%)
Port Louis	118,431	32,723	4, 281	28,442	86.9
Pamplemousses	136,268	36,150	32,302	3,848	10.6
Rivière du Rempart	106,267	29,373	27,900	1,473	5.0
Flacq	135,406	36,625	36,625	-	0.0
Grand Port	110,907	30,360	30,360		0.0
Savanne	67,906	18,992	18,992		0.0
Plaines Wilhems	362,292	103,921	64,425	39,496	38.0
Moka	82,302	22,122	20,750	1,372	6.2
Black River	76,604	21,025	20,997	28	0.1
<b>Total Island of Mauritius</b>	<b>1,196,383</b>	<b>331,291</b> <b>(100.0%)</b>	<b>256,632</b> <b>(77.5%)</b>	<b>74,659</b> <b>(22.5%)</b>	
Island of Rodrigues	40,400	10,988	10,988		0
Agalega	300	79	79		0
<b>Republic of Mauritius</b>	<b>1.233,000</b>	<b>342,358</b> <b>(100.0)</b>	<b>267,699</b> <b>(78.2%)</b>	<b>74,659</b> <b>(21.8%)</b>	

Excluding 27 homeless households with a population of 29

## 6.5 Improving access to clean domestic energy

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### **Renewable Energy**

The Mauritian Government is diversifying its energy portfolio to include renewable sources in order to decrease our dependency on fossil fuels and also capture the renewable energy potential. Solar power, wind and biomass have huge potential for short and medium term. The Long Term Energy Strategy document prepared by the Ministry of Energy and Public Utilities includes a road map to increase the renewable energy to 35 % by 2025.

Central Electricity Board has endorsed a Grid Code to promote electricity generation from renewable energy sources since 2011. This scheme allows small independent power producers to produce electricity and use for their own purpose and also sells the excess to the CEB at a preferential rate. Grid-connected photovoltaic plants of a total capacity of 25MW are being set up.

282 Small Independent Power Producers are operational and feeding around 2.5 MW of electricity into the national electricity grid. The number of applications for production of electricity received by the utility authority is 458 for residential, commercial and industrial purposes totalling 4.1 MW and 140 applications from institutional agencies for a capacity of 1.6 MW. The scheme allows power producers to produce their own energy requirements and can feed any surplus into the grid up to a maximum individual ceiling of 50kWh. The main systems used are solar, wind and hydro sources.

A wind farm of 29.4 MW at Plaine Sophie is expected to be operational in 2014.

A Landfill Gas to Energy Plant started operation in 2011 and produces 2-3MW electricity.

At household level, there is much opportunities to invest in the solar power to produce electricity for own consumption. However, there are some technical issues that must be addressed beforehand.

Small Independent Power Producers (SIPP) can now produce and use electricity from photo-voltaic, micro-hydro and wind turbines not exceeding 50MW and export the extra electricity to the national grid.

### **Energy Efficiency Measures**

Electrical lighting is one of the major consumption during peak hours in Mauritius. CEB had started a campaign in 2008 to incite domestic customers to use CFL as the latter is more energy efficient and longer lifetime. With progress in this sector LED for lighting and screen display is used. Under the Sustainable Consumption and Production agenda, the development of minimum energy performance for key household appliances has been introduced. The project has started and importation of equipment with proper energy labelling is being encouraged.

A Voluntary Scheme for Energy Efficiency Labelling of Electrical Appliances has been developed by the **Energy Efficiency Management Office (EEMO)** and introduced as from January 13, 2014. The aim of the scheme is to introduce in Mauritius the concept of energy efficiency labelling of appliances and, with the collaboration of importers and dealers, provide information on energy consumption and efficiency to help customers make better purchasing decisions. Energy efficiency labelling would become mandatory as from December 2014.

A provisional list of household appliances is included and importers and dealers of electrical appliances can participate in the scheme to promote their products which are environmentally friendly by consuming less energy and being more energy efficient.

Similarly, the phasing out of incandescent lamps has been given impetus. Most government buildings are already equipped with fluorescent lamps which are energy efficient. In 2009, 3200 conventional lamps were replaced by compact fluorescent lamps in government buildings.

Local authorities have introduced energy efficient street lighting and slowly replacing existing lights which are solar powered. 50,000 street lights are being replaced by low energy bulbs in urban and rural areas. Traffic lights have been replaced by LED.

#### **Percentage distribution of households by amenities available 2000 and 2011 Housing Censuses**

	<b>Amenity available</b>	<b>2000 (%)</b>	<b>2011 (%)</b>
1	Electricity	99.0	99.4
2	Water supply		
	Piped water inside house	83.7	94.3
	Piped water outside on premises	14.5	5.2
	Public fountain, well, river, etc.	1.8	0.5
3	Bathroom		
	With running water	89.0	95.5
	Without running water	10.1	4.0
	None	1.0	0.5
4	Toilet		
	Flush toilet	88.8	96.4
	Pit latrine	11.0	3.4
	Other and None	0.2	0.2
5	Kitchen		
	Inside housing unit	87.8	95.5
	Outside housing unit	11.4	4.2
	None	0.8	0.3
6	Main fuel for cooking		
	Cooking Gas (LPG)	91.5	97.5
	Wood and charcoal	4.5	1.9
	Kerosene	3.4	0.1
	Electricity	0.5	0.3

## 6.6 Improving access to sustainable means of transport

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Much of the road network was constructed in the pre-independence era and was not designed to support the current traffic load and weights. Many of the existing roads are the result of the gradual improvement of old sugar cane tracks. These roads are inherently deficient in geometry, drainage and strength.

With the accelerated economic development of the last three decades, there has been a dramatic increase in the fleet of vehicles plying the roads across the island. A greater number of heavy and oversized vehicles are also using the road network as a result of increased economic and consumer activities.

In many places the load of traffic has far outgrown the road capacity and this has led to unmanageable traffic congestion which has become a daily hassle for road users. Such a situation has been observed on motorways M1 and M2 especially between Curepipe and Terre Rouge, on main roads A1 and A2 as well as some sections of A3 and A7 which pass through dense conurbations. The load of traffic has also affected mobility in developed villages such as Goodlands, Triolet, Centre de Flacq, Mahebourg and Grand Bay.

As regards safety on roads, a Speed Camera Enforcement programme has already been implemented with the aim of promoting speed limit compliance and a consequent reduction in speed-related crashes. A penalty point system has been introduced through amendments of the Road Traffic Act and by making appropriate regulations to discourage bad driving.

## 6.7 Challenges experienced and lessons learnt

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With regards to the Small Scale Distributed Generation Scheme (SSDG) (up to 50 kW capacity), the CEB has to date connected Small independent power producers of total capacity 3 MW. Further addition will depend on the grid stability and studies will be carried out to verify what capacity will be added. There is also a proposed scheme for MSDG that will be subject to meeting technical requirements and formulation of a proper tariff structure.

Mauritius has abundance of sunshine and that is why many projects are concentrated in this form of energy. Some major projects have started in Mauritius: **(1)** 15 MW solar farm in Bambous (Sarako PvP Ltd) started operation in 2014. Ten MW solar PV projects scattered around the island are expected to be operational in 2014/2015.

The production of energy from clean sources is targeted to provide at least 3MW to the national grid by end of 2014. It is noted that the demand for energy is increasing annually by 5% and is likely to increase by 37% at the end of the next 10 years.

In 2009, Government introduced a scheme to promote the use of solar water heater (SWH). A grant of Rs. 10,000 was provided to 24,000 households for the purchase SWHs. The Maurice Ile Durable Fund established in 2008, for the financing of sustainable development projects, disbursed Rs. 250 million for the SWH project. Following the success of the initial programme, Government had reinstated the subsidy scheme for purchase of SWHs to 24,000 beneficiaries in 2012.

With a view to be energy efficient, the Authority is envisaging the application of green energy options. As such, an application was made under the Clinton Global Initiative for assistance in elaborating an Energy Efficiency Action Plan for CWA. The proposal was well received and assistance in terms of facilitation and advice is awaited from the Clinton Foundation. Water and energy are interlinked and any improvement in energy efficiency inevitably impact on water availability.

## 6.8 Future challenges and issues

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An aggressive reduction of non-revenue water project has been initiated in one of the six water supply systems with a view to minimise network losses. A phased approach is being adopted with focus on one zone having regard to financial implications. It is proposed to replicate this project to the remaining water supply systems in due course.

The ultimate objective of the Master Plan for “*Development of the Water Resources in Mauritius*” is to satisfy the water demand in the different supply zones for the various sectors of the economy by ensuring continuous supply over the island even during the dry season.

The future water security of Mauritius inevitably will depend on investments in water mobilization infrastructure as recommended in the Water Resources Master Plan, but it will also require increasing focus on the reduction of system losses through rehabilitation of transmission mains, conveyer canals and distribution systems. Furthermore, roof top rainwater harvesting on a household basis is among the measures adopted for harnessing additional water resources. As such, the mobilization of additional water resources for managing rapid urbanization is being considered by the Mauritian Government.

In order to have a sustainable and safe transport system, Government will implement necessary measures to reduce hazards on high risk roads and eliminate accident black-spots by 2020.

A five stage Road Safety Audit (Feasibility Audit- Preliminary Design Audit – Detailed design Audit - Pre-opening Audit and Post-opening Audit) for all major new roads projects and traffic schemes, including rehabilitation and upgrading works will be introduced.

Safety assessments of existing road infrastructure will be conducted and implementation of proven engineering measures to improve safety performance thereon, by requiring the highway Authorities to improve and widen narrow sections of the road network wherever possible and provide hard shoulders to minimize risks for out of control vehicles and protect vulnerable road users, improve existing junctions to provide more inter-visibility between vehicles both on laterals and main roads and minimize right angle collisions.

Government will promote safe operation, maintenance and improvement of existing road infrastructure by requiring the highway Authorities to carry out inspections on road lighting, traffic signals, road furniture and devices, road markings, traffic signs, safety barriers and bridges to ensure regular maintenance and timely repairs of defects identified.

Design and construction of segregated auto/motorcycle (inclusive or exclusive) lanes alongside certain stretches of the main roads will be encouraged to minimize „head on“ collisions involving two wheeled vehicles at accident prone areas. Similarly, implementation of a programme for upgrading and maintaining pedestrian footway to enhance safer pedestrian crossing through infrastructure-based interventions will be encouraged.

A targeted enforcement approach will be adopted to coordinate enforcement activities with the Police Force with respect to high risk times and identified high risk locations that are associated with high risk drink driving behaviour and to target two wheeled drivers as well and use of intelligence data-led policing strategies for deploying enforcement against road traffic law violations.

The Media will be used to become an important partner for the communication strategy to work effectively with road safety messages given in the correct way, based on a psychological approach for each target group. Regular road safety sensitization campaigns, sustained throughout the year, will be undertaken with media help to encourage all categories of road users to modify their risks taking attitudes.

To face rapid changes in social dynamics and urban development, pockets of poverty need to be addressed by a well-structured team of cross ministerial, public and private sector professionals Community Based Organisations and representatives of vulnerable groups. The PSUP will provide an appropriate framework with all concerned stakeholders to help them implement a long term sustainable programme to upgrade and prevent existing and future pockets of poverty.

## VII. INDICATORS

	<b>Urban Indicators</b>	1990 (%)	2000 (%)	2011 (%)
(i)	% People living in slums			1
(ii)	% Urban population with access to adequate housing			99.57
(iii)	% People residing in urban areas with access to safe drinking water	98.58	98.68	99.84
(iv)	% People residing in urban areas with access to adequate sanitation(Flush toilet and pit latrine)	99.77	99.93	99.94
(v)	% People residing in urban areas with access to regular waste collection		96.41	99.03
(vi)	People residing in urban areas with access to clean domestic energy			99.77
(vii)	people residing in urban areas with access to public transport			All
(viii)	Level of effective decentralization for sustainable urban development measured by (i) percentage of policies and legislation on urban issues in whose formulation local and regional governments participated from 1996 to the present; (i) percentage share of both income and expenditure allocated to local and regional governments from the national budget; (ii) percentage share of local authorities „expenditure financed from local revenue			3 23
(ix)	Percentage of city and regional and national authorities that have implemented urban policies supportive of local economic development and creation of decent jobs and livelihoods			Island wide coverage-
(x)	Percentage of city and regional authorities that have adopted or implemented urban safety and security policies or strategies.			Island wide coverage- 75 to 80%
(xi)	Percentage of city and regional authorities that have implemented plans and designs for sustainable and resilient cities that are inclusive and respond to urban population growth adequately			Island wide coverage-
(xii)	Share of national GDP produced in urban areas.			4.1% island wide